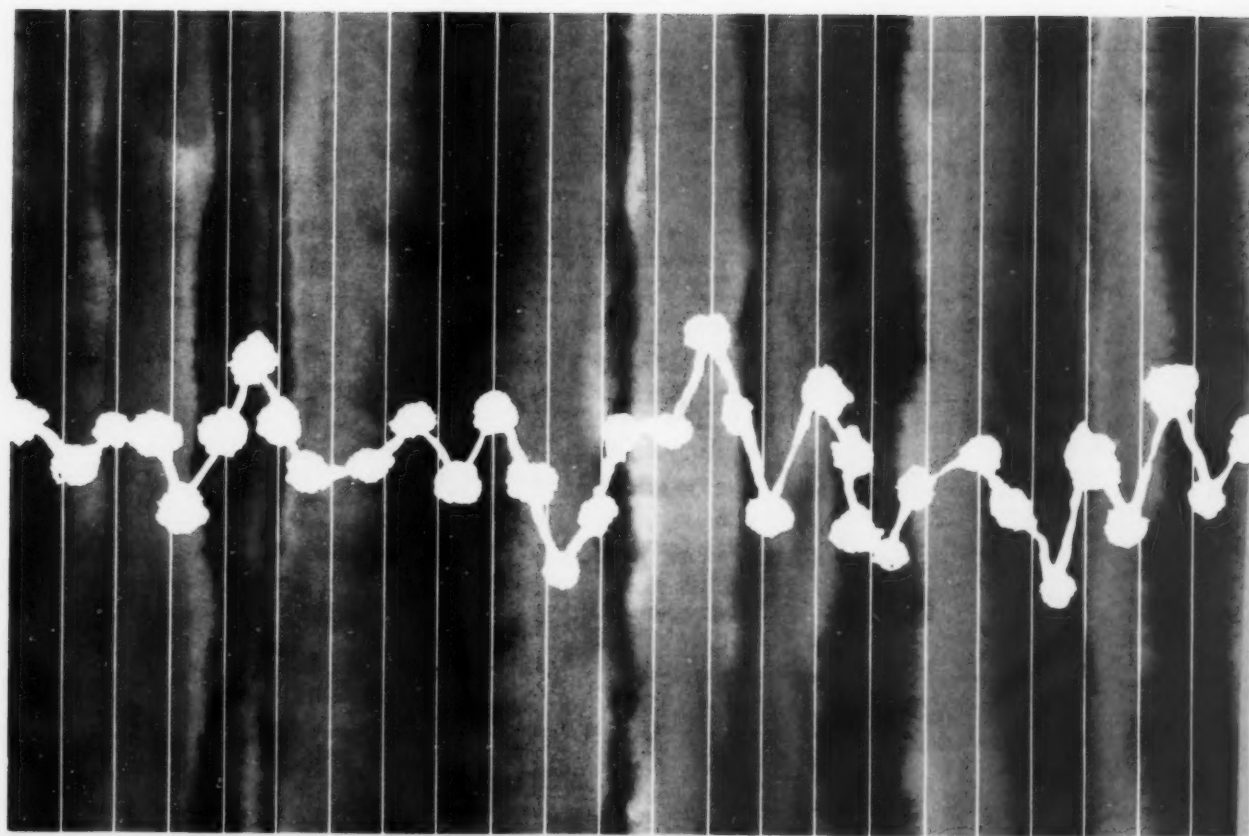


defense indicators

MAY 1976



U.S. DEPARTMENT OF COMMERCE • BUREAU OF ECONOMIC ANALYSIS



This report was prepared in the Statistical Indicators Division, Bureau of Economic Analysis. Technical staff and their responsibilities for the publication are—

Barry A. Beckman—Technical supervision and review,

Morton Somer—Selection of seasonal adjustment methods,

Betty F. Tunstall—Collection and compilation of basic data.

The cooperation of various government agencies which provide data is gratefully acknowledged.

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The Secretary of Commerce has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this Department. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget through September 1, 1977.

U. S. DEPARTMENT OF COMMERCE Elliot L. Richardson, Secretary

BUREAU OF ECONOMIC ANALYSIS

George Jazi, Director

Morris R. Goldman, Deputy Director

Beatrice N. Vaccara, Associate Director for
National Analysis and Projections

Feliks Tamm, Editor

This publication is prepared under the general guidance of an interagency committee established by the Office of Management and Budget. This committee consists of the following persons:

David T. Hulett, Chairman
Office of Management and Budget

James D. August, Board of Governors of the Federal Reserve System.

Murray F. Foss, Council of Economic Advisers, Executive Office of the President

Rose Glubin, Office of Assistant Secretary of Defense (Comptroller), Department of Defense

Dale W. Gordon, Bureau of the Census, Department of Commerce

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defense indicators

May 1976

Series ES4 No. 76-5

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6 BEA PROJECTS

for economic
analysis

BUSINESS CONDITIONS DIGEST A monthly report for analyzing economic fluctuations over a short span of years.

This report brings together approximately 600 economic time series in a form convenient for analysts whether their approach to the study of current business conditions and prospects is the national income model, the leading indicators, anticipations and intentions, or a combination of these. Other types of data such as foreign trade, Federal Government activities, and international series are included to facilitate a more complete analysis.

Data are presented in charts and tables. Appendixes provide historical data, series descriptions, seasonal adjustment factors, and measures of variability. A computer tape containing data for most of the series is available for purchase.

DEFENSE INDICATORS A monthly report for analyzing the current and prospective impact of defense activity on the national economy.

This report brings together the principal time series on defense activities which influence short-term changes in the national economy. These include series on obligations, contracts, orders, shipments, inventories, expenditures, employment, and earnings. The approximately 60 time series included are grouped in accordance with the time at which the activities they measure occur in the defense order-production-delivery process. Charts and analytical tables facilitate interpretation.

LONG TERM ECONOMIC GROWTH A report for the study of economic trends over a long span of years, 1860-1970.

This report has been developed from available statistics to provide a comprehensive, long-range view of the U.S. economy. It is a basic research document for economists, historians, investors, teachers, and students. It brings together under one cover, in meaningful and convenient form, the complete statistical basis for a study of long-term economic trends. A computer tape file of the time series included in the report is available for purchase.

COMPUTER PROGRAMS FOR TIME SERIES ANALYSIS The source statements for FORTRAN IV programs used by BEA in its analysis of time series are available on a single computer tape.

SEASONAL ADJUSTMENT PROGRAMS.—Two variants of the Census computer program for measuring and analyzing seasonal, trading-day, cyclical, and irregular fluctuations. They are particularly useful in analyzing economic fluctuations which take place within a year. The X-11 variant is used for adjusting monthly data and the X-11Q for quarterly data. These programs make additive as well as multiplicative adjustments and compute many summary and analytical measures.

DIFFUSION INDEX PROGRAM.—A computer program for computing diffusion indexes, cumulated diffusion indexes, and summary measures of the properties of each index.

SURVEY OF CURRENT BUSINESS A monthly report for analyzing current economic developments.

This report provides a useful combination of current data for more than 2,500 statistical series and significant articles analyzing economic developments. These data and analyses include such areas as the national income and product accounts, the balance of payments accounts, plant and equipment expenditures, regional personal income, and the input-output accounts.

BUSINESS STATISTICS A biennial reference volume containing statistical series reported currently in the *Survey of Current Business*.

This report provides historical data back to 1947 for nearly 2,500 time series. The series are accompanied by concise descriptions as to their composition, methods of compilation, comparability, revisions, and availability. Also listed are the names and addresses of organizations which provide the basic data for the series.

Introduction

The purpose of this monthly report is to bring together the principal time series on defense activity which influence short-term changes in the national economy. These include series on obligations, contracts, orders, shipments, inventories, expenditures, employment, and earnings. Most are monthly but a few quarterly series are included. The series numbers used are for identification purposes only and do not reflect relationships or order.

Classification of Series

Chart 1 compares Government purchases of goods and services for national defense with total gross national product. GNP is the market value of the final output of goods and services produced by the Nation's economy and represents a very broad measure of aggregate economic activity. In addition to national defense purchases, it includes Federal Government purchases of goods and services for nondefense purposes, State and local government purchases, personal consumption expenditures, gross private domestic investment, and net exports of goods and services. Chart 1 also presents national defense purchases as a percent of gross national product and, for both series, changes from the previous quarter.

A related group of series is shown in Chart 4, "Defense Related Balance of Payments Components." These series show the effects of defense-related economic activity on the balance of payments accounts.

The remaining series are grouped in accordance with the time at which the activities they measure occur within the defense order-production-delivery process. Those series measuring activities that usually precede production, such as new orders placed with defense products industries and contract awards, are presented in Chart 2, "Advance Indicators of Defense Activity." Chart 3, "Intermediate and Final Indicators of Defense Activity," presents series that measure activities which tend to move at the same time as production (such as employment) and activities which usually follow production (such as shipments).

Series Included

Following is a list of the series as they appear in charts 1, 2, 3, and 4 (the source agencies are abbreviated in parentheses; detailed lists of sources for charts 1, 2, and 3 appeared as appendixes to the August and October 1968 issues of this report).

Gross National Product and National Defense Purchases

- Gross national product (BEA)
- Federal Government purchases of goods and services, national defense (BEA)
- National defense purchases as a percent of gross national product (BEA)
- Gross national product, changes from previous quarter (BEA)
- National defense purchases, changes from previous quarter (BEA)

Advance Indicators of Defense Activity

- Defense Department gross obligations incurred, total (DOD)
- Defense Department gross obligations incurred, procurement (DOD)
- Gross obligations incurred outside the Government for national defense (Treasury)

- Defense Department military prime contract awards for work performed in the United States (DOD)
- Defense Department gross unpaid obligations outstanding (DOD)
- Manufacturers' new orders (Census):
 - Defense products industries
 - Defense products
- Manufacturers' new orders from the U.S. Government, aerospace industries (Census):
- Average weekly overtime hours, production workers, defense products industries (BLS)
- Accession rate, defense products industries (BLS)
- Layoff rate, defense products industries (BLS)

Intermediate and Final Indicators of Defense Activity

- Output of defense and space equipment (FRB)
- Manufacturers' inventories (Census):
 - Defense products industries
 - Defense products
- Manufacturers' unfilled orders (Census):
 - Defense products industries
 - Defense products
- Manufacturers' unfilled orders from the U.S. Government, aerospace industries (Census)
- Defense Department progress payments outstanding (DOD)
- Employment in defense products industries, total (BLS)
- Employment in defense products industries, production workers (BLS)
- Index of aggregate weekly hours, defense products industries (BLS)
- Index of aggregate weekly payrolls, production workers, defense products industries (BLS)
- Defense Department personnel, military, active duty (DOD)
- Defense Department personnel, civilian, direct hire employment (DOD)
- Defense Department net outlays, total, military functions and military assistance (DOD)
- Defense Department net outlays, procurement (DOD)
- Budget outlays for the national defense function (Treasury)
- Defense Department personnel compensation (DOD)
- Manufacturers' shipments (Census):
 - Defense products industries
 - Defense products
- Manufacturers' shipments to the U.S. Government, aerospace industries (Census)
- Ratio, manufacturers' unfilled orders to shipments (Census):
 - Defense products industries
 - Defense products
- Ratio, manufacturers' inventories to shipments (Census):
 - Defense products industries
 - Defense products

Defense-Related Balance of Payments Components

- Transfers under U.S. military agency sales contracts—exports (BEA)
- Direct defense expenditures—imports (BEA)
- U.S. Government cash receipts associated with military sales contracts (BEA)

Some additional data are included in the tables though not presented in the charts. These include Defense Department military prime contract awards by procurement category (e.g., for aircraft, missiles and space systems, ships, weapons, and ammunition), the operations component of Defense Department

gross obligations incurred, gross unpaid obligations outstanding, and net outlays and the procurement component of gross unpaid obligations outstanding.

Description of Basic Data

The Department of Defense compiles statistics on obligations, contract awards, personnel compensation, and outlays. The DOD obligations and outlays data are based on the Defense Department's monthly *Status of Funds* report which is developed from accounting data and is designed to provide information on the total status of Defense Department financing. Accounts included in this report are aggregated by appropriation categories including personnel costs, operations and maintenance, procurement, research and development, and construction. The *Status of Funds* report duplicates some obligations. That is, obligations of one government unit to another unit are not netted out.

The Defense Department's *Contract Awards* report covers the awarding of procurement contracts. These include obligations for operating and maintenance supplies, equipment and services, research and development, and construction in addition to the obligations for items that constitute the fiscal "procurement" category. The statistics are aggregated by commodity categories including aircraft, missile and space systems, ships, weapons, ammunition, electronics and communication equipment, fuels, and textiles and clothing. The *Contract Awards* report includes procurement for NASA, other nondefense agencies, and the Foreign Military Sales Program which are not included in the *Status of Funds* report.

The Census quarterly new orders, unfilled orders and shipments series for "aerospace industries" are based on reports of companies classified into the following industry categories:

Industry	SIC Code
Aircraft and parts	372
Guided missiles and space vehicles, completely assembled ..	1925

The Census and BLS data for "defense products industries" presented in this report cover companies and establishments¹ classified into the following industry categories in accordance with the *Standard Industrial Classification Manual*, 1967 edition, Executive Office of the President, Bureau of the Budget:

Industry	SIC Code
Ordnance and accessories	19
Communication equipment	366
Aircraft and parts	372

Establishments reporting to the BLS are classified into industries on the basis of their principal product or activity as determined from information on annual sales volume, which is collected each year on a supplement to the monthly report. The entire employment of an establishment making more than one product or engaging in more than one activity is included under the industry accounting for the largest percentage of the annual sales of that establishment.

The Census Bureau's monthly survey is based primarily on reports at the company level and the monthly estimates are benchmarked to the establishment data from the *Annual Survey*

¹An establishment is a single physical location where business is conducted (e.g., a plant). A company often includes more than one establishment.

of *Manufactures*. Also, many of the large diversified companies file separate divisional reports monthly. Although the reports in the survey are also classified according to their principal product or activity, this difference in the organizational level from which reports are received results in firms being classified into different industries in the BLS and Census surveys and, consequently, limits somewhat the comparability of the data collected by these agencies. However, as we know from past studies in this area, some differences in industrial classification between BLS and Census data would remain even if reports came from the same organizational levels.

Both the Census and the BLS data include a significant amount of nondefense activities carried on by companies and establishments classified in the above industries. For example, the data cover the production of commercial as well as military aircraft. On the other hand, they exclude significant amounts of defense work carried on by companies and establishments classified in industries other than those listed above (e.g., the manufacture of military uniforms and the shipbuilding industry).²

Census data for "defense products" are based on separate reports on defense work filed by large defense contractors in the ordnance, communications, complete aircraft, aircraft parts, and shipbuilding industries. Thus, they differ from the "defense products industries" data in that they include defense activity in the shipbuilding industry and exclude nondefense work in the other industries covered. Defense products data cover work for the Department of Defense and exclude contracts for the National Aeronautics and Space Administration and the Atomic Energy Commission.

The DOD data are not strictly comparable in coverage with either the BLS or the Census data since the Defense Department figures (1) cover products of industries not included in the defense products category; (2) generally do not include non-defense activities (except that some series, such as contract awards, include activities by the Department of Defense on behalf of nondefense agencies); and (3) do not cover intermediate activities such as those related to subcontracting and supplying of parts. Thus, the Census Bureau data for manufacturers' new orders and shipments of defense products industries, for example, differ in coverage from the DOD contract awards and net outlays series.

The Department of Defense data are not comparable with Federal Government purchases of goods and services for national defense or the Treasury Department obligations and outlays data since the BEA and Treasury data cover defense-related activities of other agencies such as the Atomic Energy Commission, the Selective Service System, and the Office of Emergency Planning.

Projects to improve the comparability of the data collected by the Bureau of the Census, the Bureau of Labor Statistics, and the Department of Defense and to improve the separation of defense and nondefense activity for the Census and BLS data are being undertaken by the statistical agencies under the leadership of the Interagency Committee mentioned earlier in this report.

²See the Bureau of the Census publication *Shipments of Defense-Oriented Industries*, Current Industrial Reports, Series MA-175, for annual estimates of shipments by industry to the Department of Defense, the National Aeronautics and Space Administration, and the Atomic Energy Commission. Included also are industries not covered by the "defense products industries" category.

Variability of Data

Seasonal variations dominate the movements of many time series, and adjustments for average seasonal fluctuations are often necessary to bring out the underlying trends of the series. These seasonal adjustments allow for the effects of repetitive intrayear variations resulting primarily from normal differences in weather conditions and from various institutional arrangements. An additional adjustment is sometimes necessary for series which contain considerable variation resulting from the number of working or trading days in each month. As used in this report, the term "seasonal adjustment" includes trading-day adjustments where they have been made.

Most of the series in this report are shown in seasonally adjusted form. For Defense Department and BLS series, unadjusted data are also shown since they are not readily available elsewhere. Current seasonal adjustment factors are shown in appendix A.

The effect of seasonal adjustment in reducing the month-to-month variation in the data can be seen in appendix B. There, the first two columns show the average month-to-month percent change (without regard to sign) in the data before and after seasonal adjustment. Some series still show very irregular month-to-month movements after adjustment for seasonal variation. The measures in appendix B also indicate the month-to-month variation in the irregular and short-term trend components of the series. For many series, irregular movements tend to dominate 1- or 2-month comparisons, and the underlying short-term trend becomes dominant in comparisons over longer spans. The "months for cyclical dominance" (MCD) measure estimates the span of months required for the short-term trend to dominate the irregular component. Series with an MCD of 4 or more are supplemented with a moving average (with the

number of terms equal to MCD) in the charts. Data for these moving averages are listed in the basic data tables.

Guide to Charts and Tables

Most series are plotted on a standard ratio scale so that equal percent changes cover the same vertical distance. For these series, an increase of 100 percent covers approximately 1 inch. Arithmetic scales are used for series with zero or negative data, series which could approach zero (e.g., average overtime hours and layoff rate), and series expressed in percent.

In general, monthly data are plotted with a solid line and quarterly data are represented by a solid line with quarterly plot points. Quarterly series are also identified with a "Q" after their titles. For series which include a moving average, a dashed line is used for the actual monthly data and a solid line for the moving average. (The moving average values are centered within the span of months they are computed from.) Exceptions to this scheme may be necessary for special situations. Data apply to the whole period except for series designated "EOM" (end of month) or "EOQ" (end of quarter). The number in the box at the right of each series indicates the latest month (Arabic) or quarter (Roman) plotted. Parallel lines across a series indicate a break in continuity (e.g., data not available or change in series definition).

Tables 1, 2, 3, and 4 present current data for the series shown in the charts, including the moving averages. They also include unadjusted data for some series and data for related series which are not plotted. Table A summarizes the most recent data and percent changes for many of the series in the report. Historical data are shown on an intermittent basis in appendix C. (The index indicates the appropriate issue for each series.)

New Features and Changes for This Issue

The measures of variability shown in appendix B have been revised to take into account more recent data. As a result of these new measures, a 4-month moving average has been added for series 653 (Average weekly overtime hours) and 5-month moving averages have replaced the 6-month averages previously shown for series 691 (Ratio, manufacturers' unfilled orders to shipments) and series 693 (Ratio, manufacturers' inventories to shipments). Historical data for the new moving averages will be shown in a subsequent issue.

The June issue of DEFENSE INDICATORS is scheduled for release on June 30.

Table A. Summary of Recent Data and Current Percent Changes for Principal Defense Indicators

(Preliminary and revised figures are not identified here but the user may consult tables 1, 2, 3, and 4 where such identification is given)

Series title	Unit of measure	Basic data								Percent change				Series number
		Average		3d Q 1975	4th Q 1975	1st Q 1976	Feb. 1976	Mar. 1976	Apr. 1976	Feb. '76 to Mar. '76	Mar. '76 to Apr. '76	3d Q '75 to 4th Q '75	4th Q '75 to 1st Q '76	
		1974	1975											
GROSS NATIONAL PRODUCT AND NATIONAL DEFENSE PURCHASES														
200. Gross national product (BEA)	Ann. rate, bil. dol.	1406.9	1498.9	1528.5	1572.9	1619.2	...	...	...	...	...	2.9	2.9	200
264. Federal Government purchases of goods and services, national defense (BEA) .....	....do	77.4	84.0	84.9	87.4	87.0	...	...	...	...	...	2.9	-0.5	264
613. National defense purchases as a percent of GNP (BEA) ¹	Percent	5.5	5.6	5.6	5.6	5.4	...	...	...	...	...	0.0	-0.2	613
ADVANCE INDICATORS OF DEFENSE ACTIVITY														
Defense Dept. gross obligations incurred (DOD):														
617. Total	Ann. rate, bil. dol.	93.9	98.5	103.7	97.5	99.7	95.5	106.1	NA	11.1	NA	-6.0	2.3	617
621. Procurement .....	....do	20.6	20.4	25.7	17.1	21.1	19.3	28.2	NA	46.1	NA	-33.5	23.4	621
623. Gross obligations incurred outside the Federal Government for national defense (Treasury) .....	....do	101.1	NA	107.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	623
625. Defense Department military prime contract awards for work performed in the U.S. (DOD) .....	....do	41.4	43.3	48.0	35.9	50.8	35.9	75.7	NA	110.9	NA	-25.2	41.5	625
643. Defense Department gross unpaid obligations outstanding (DOD)	Bil. dol. end of period	40.0	40.9	42.3	40.9	41.9	41.1	41.9	NA	1.9	NA	-3.3	2.4	643
648. Mfrs.' new orders, defense products (Census)	Ann. rate, bil. dol.	22.8	21.2	23.4	18.6	23.2	21.4	31.6	26.4	47.7	-16.5	-20.5	24.7	648
650. Manufacturers' new orders from the U.S. Government, aerospace industries (Census) .....	....do	19.1	18.3	18.9	22.0	NA	...	...	...	...	...	16.4	NA	650
653. Average weekly overtime hours, production workers, defense products industries (BLS) ¹	Hours	2.8	2.5	2.5	2.5	2.6	2.6	2.6	NA	0.0	NA	0.0	0.1	653
654. Acquisitions, defense products industries (BLS) ¹	Number per 100 employees	2.1	1.4	1.3	1.4	NA	1.6	NA	NA	NA	NA	0.1	NA	654
655. Layoffs, defense products industries (BLS) ¹ .....	....do	0.6	1.2	1.2	0.8	NA	0.7	NA	NA	NA	NA	-0.4	NA	655
INTERMEDIATE AND FINAL INDICATORS OF DEFENSE ACTIVITY														
657. Output of defense and space equipment (FRB)	1967=100	82.3	81.8	81.9	79.8	79.0	79.1	78.7	78.8	-0.5	0.1	-2.6	-1.0	657
659. Mfrs.' inventories, defense products (Census)	Bil. dol. end of period	6.5	7.8	7.7	7.8	8.1	7.8	8.1	NA	3.8	NA	1.3	3.8	659
661. Mfrs.' unfilled orders, defense products (Census) .....	....do	24.6	25.4	26.0	25.4	25.6	24.8	25.6	25.9	3.2	1.2	-2.3	0.8	661
664. Manufacturers' unfilled orders from the U.S. Government, aerospace industries (Census) .....	....do	20.7	21.9	20.8	21.9	NA	...	...	...	...	...	5.3	NA	664
666. Defense Department progress payments outstanding (DOD) .....	....do	9.2	11.3	11.0	11.3	NA	...	...	...	...	...	2.7	NA	666
Employment in defense products industries (BLS):														
670. Total	Thousands	1,177	1,118	1,108	1,081	1,078	1,076	1,078	1,074	0.2	-0.4	-2.4	-0.3	670
671. Production workers .....	....do	618	570	563	542	542	540	543	539	0.6	-0.7	-3.7	0.0	671
673. Index of aggregate weekly hours, defense products industries (BLS)	1967=100	69.4	66.0	65.6	63.9	63.8	63.5	63.7	NA	0.3	NA	-2.6	-0.2	673
675. Index of aggregate weekly payrolls, production workers, defense products industries (BLS) .....	....do	98.2	100.5	101.3	99.6	101.1	100.4	101.9	NA	1.5	NA	-1.7	1.5	675
Defense Department personnel (DOD):														
677. Military, active duty	Thousands, end of period	2,140	2,084	2,105	2,084	2,090	2,093	2,090	2,087	-0.1	-0.1	-1.0	0.3	677
678. Civilian, direct hire employment .....	....do	1,043	1,028	1,030	1,028	1,016	1,019	1,016	NA	-0.3	NA	-0.2	-1.2	678
Defense Department net outlays (DOD):														
680. Total, military functions and military assistance	Ann. rate, bil. dol.	83.6	88.5	95.0	91.9	83.9	84.1	88.0	92.4	4.6	5.0	-3.3	-8.7	680
682. Procurement .....	....do	15.5	16.2	16.5	16.3	15.0	15.5	13.0	22.6	-16.1	73.8	-1.2	-8.0	682
683. Budget outlays for the national defense function (Treasury) .....	....do	84.8	92.5	98.0	95.9	82.0	73.5	90.0	93.4	22.4	3.8	-2.1	-14.5	683
685. Defense Dept. personnel compensation (DOD) .....	....do	33.5	34.6	35.3	35.4	34.2	33.5	34.0	NA	1.5	NA	0.3	-3.4	685
688. Mfrs.' shipments, defense products (Census) .....	....do	18.9	20.4	19.9	21.1	22.5	22.8	22.6	22.3	-0.9	-1.3	6.0	6.6	688
689. Manufacturers' shipments to the U.S. Government, aerospace industries (Census) .....	....do	15.2	17.2	19.3	17.3	NA	...	...	...	...	...	-10.4	NA	689
691. Ratio, manufacturers' unfilled orders to shipments, defense products (Census)	Ratio	14.5	14.9	15.5	14.6	13.4	13.1	13.6	13.9	3.8	2.2	-5.8	-8.2	691
693. Ratio, manufacturers' inventories to shipments, defense products (Census) .....	....do	3.9	4.3	4.6	4.4	4.2	4.1	4.3	NA	4.9	NA	-4.3	-4.5	693
DEFENSE-RELATED BALANCE OF PAYMENTS COMPONENTS														
546. Transfers under U.S. military agency sales contracts—exports (BEA) ¹	Ann. rate, mil. dol.	2,944	3,981	4,280	4,648	NA	...	...	...	...	...	368	NA	546
547. Direct defense expenditures—imports (BEA) ¹ .....	....do	5,103	4,800	4,480	4,668	NA	...	...	...	...	...	188	NA	547
696. U.S. Government cash receipts associated with military sales contracts (BEA) ¹ .....	....do	2,957	4,684	4,716	5,348	NA	...	...	...	...	...	632	NA	696

NOTE: This table is presented as a convenient summary of the current data for many of the indicators in this report. In many cases, data shown here are rounded to fewer digits or are in different units than those shown in tables 1, 2, 3, and 4. Where available, annual figures are those published by the source agencies; otherwise they (and the quarterly figures for monthly series) are averages or totals of the data as shown in the data tables. Series are seasonally adjusted except for those indicated by ¹, which appear to contain no seasonal movement.

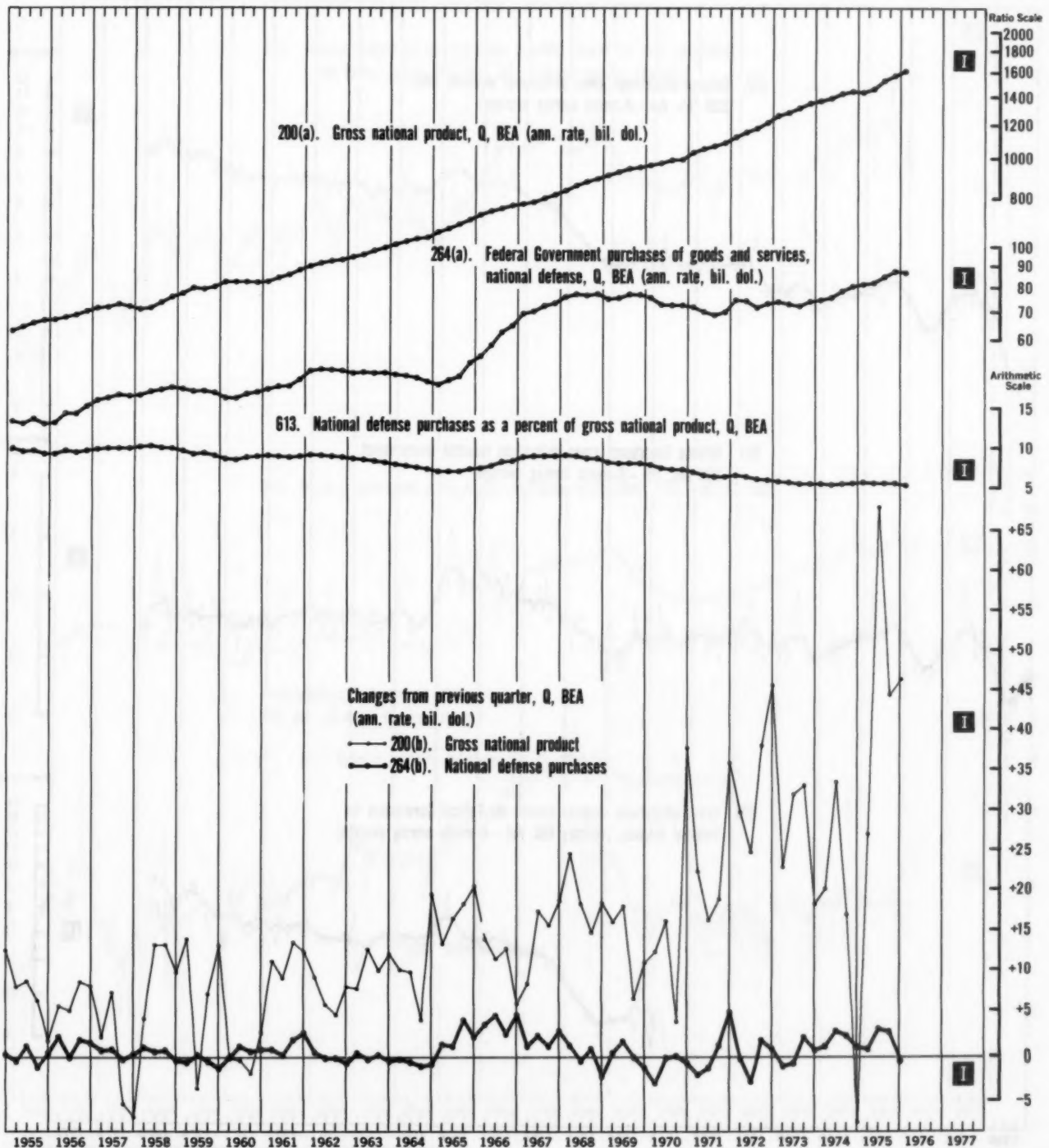
NA = not available.

¹Differences rather than percent changes are shown for this series.

CHART

1

Gross National Product and National Defense Purchases

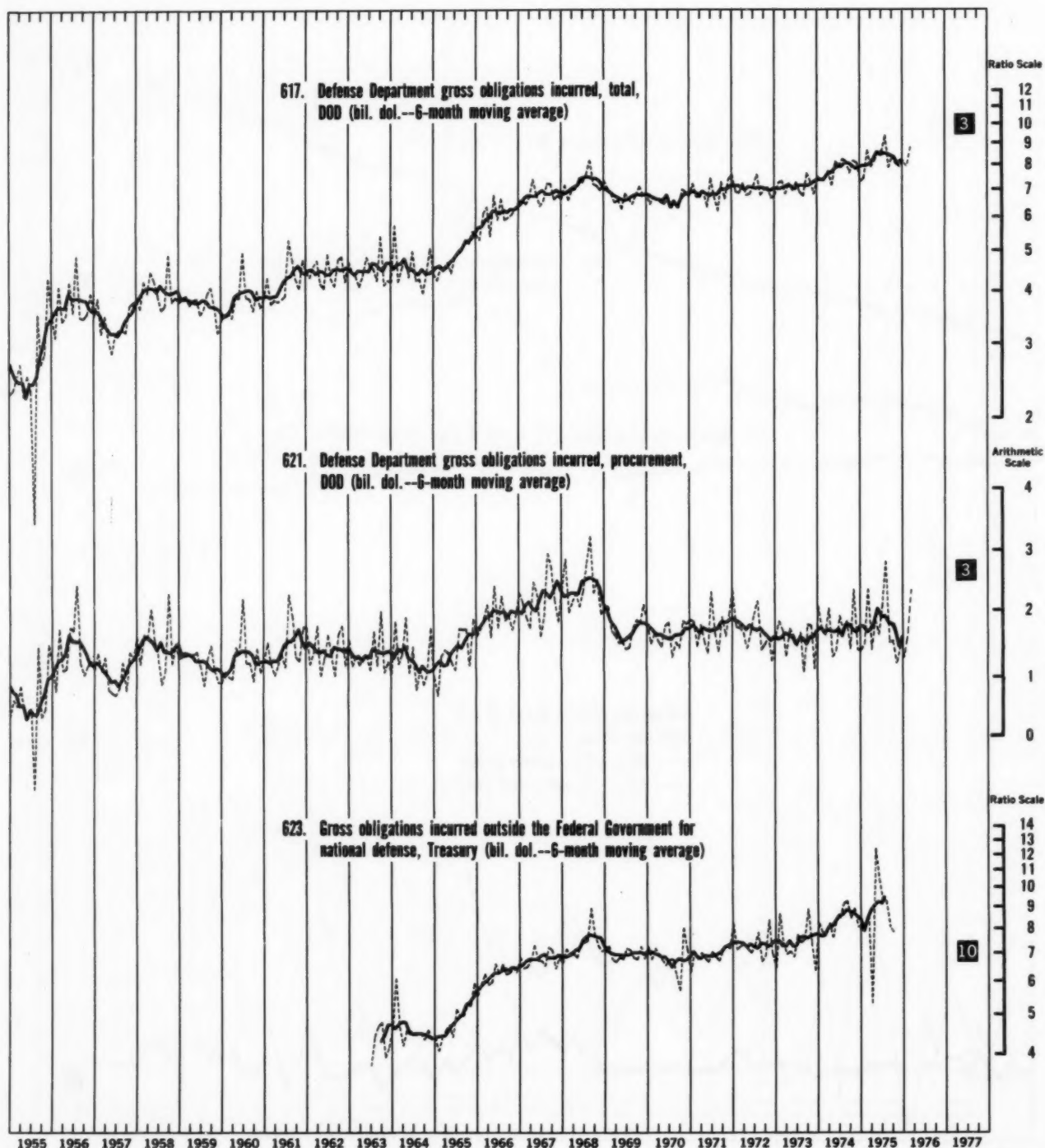


Current data for these series are shown on page 14.

CHART

2

Advance Indicators of Defense Activity

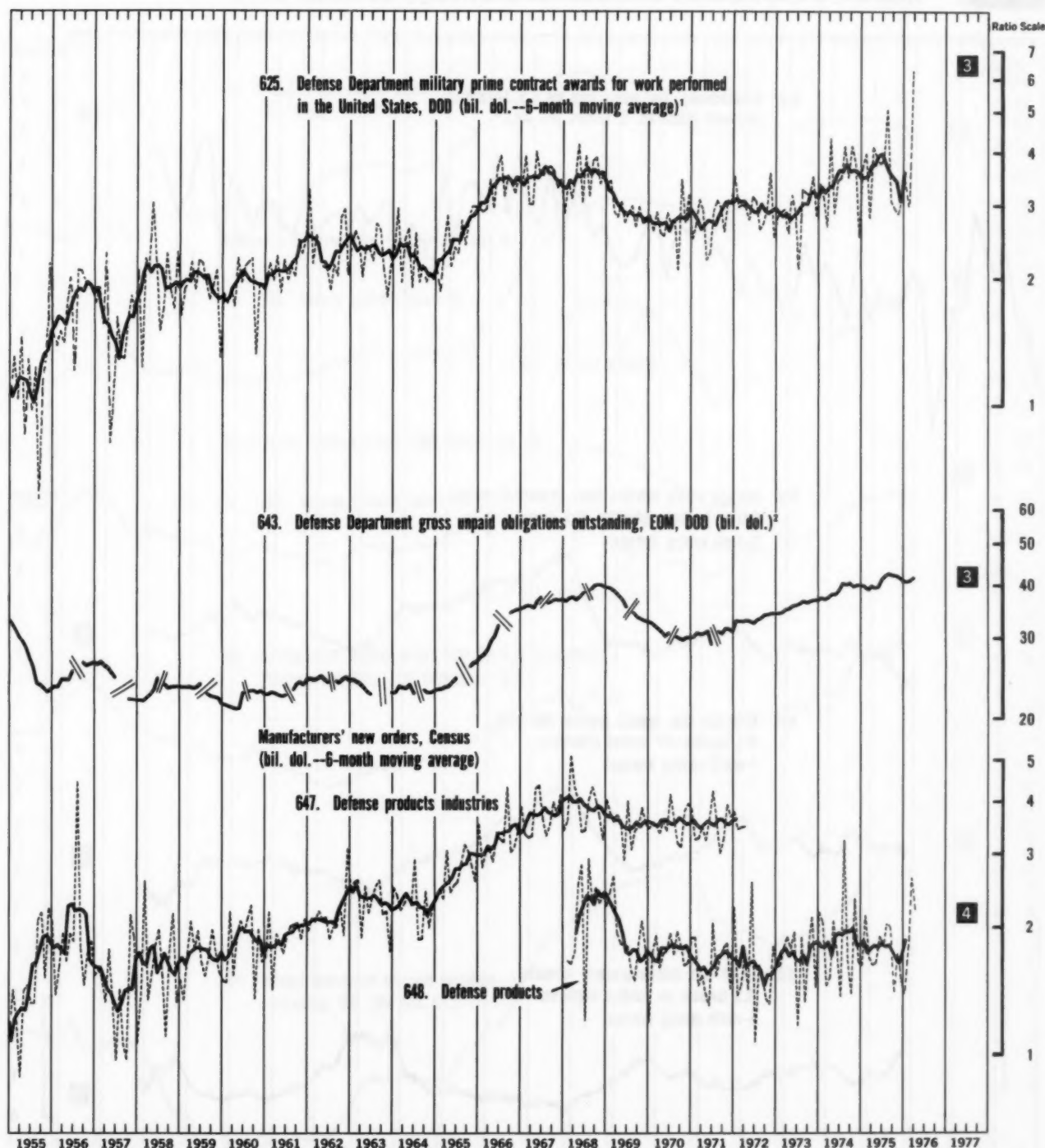


Current data for these series are shown on pages 15 and 16.

CHART

2

Advance Indicators of Defense Activity--Continued



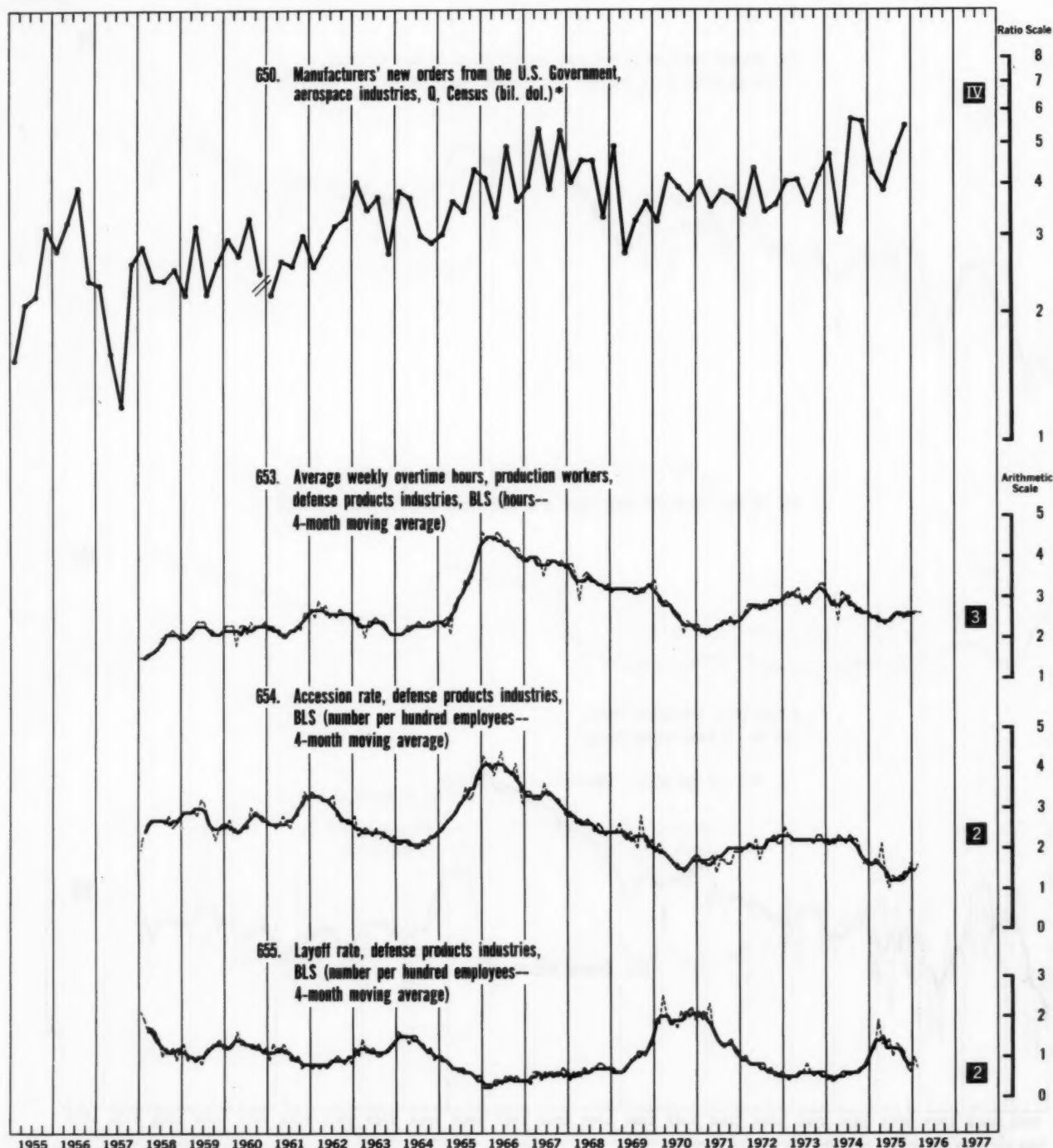
¹ Data prior to July 1955 exclude orders written to other Government agencies.

² Data for the following months not available: July of 1956-71; August of 1956-57 and 1963-66; September of 1957, 1963, and 1965; and October and November of 1963. Current data for these series are shown on pages 16 and 20.

CHART

2

Advance Indicators of Defense Activity--Continued

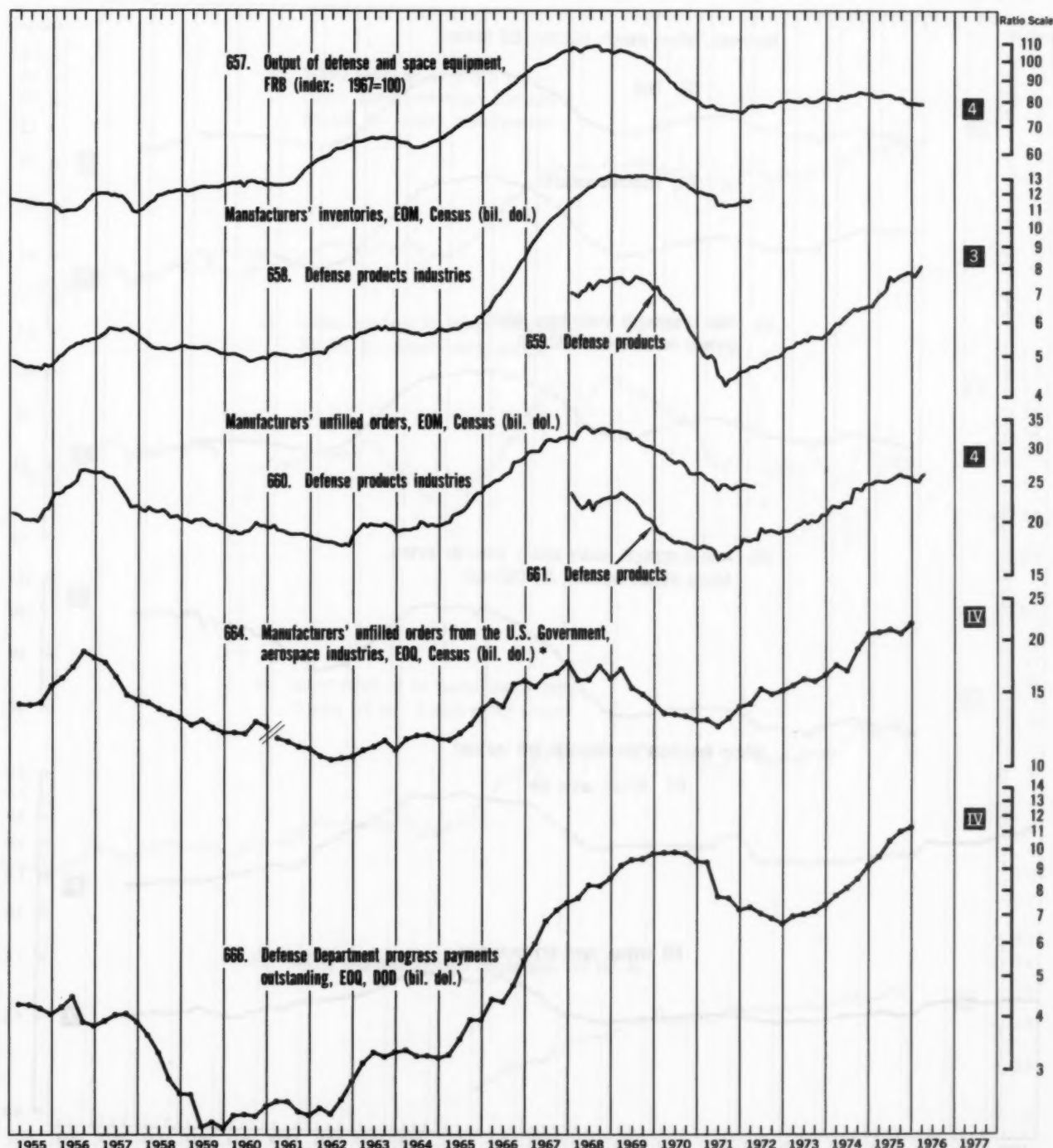


*Data prior to 1961 include orders from non-Government customers.
Current data for these series are shown on pages 20 and 21.

CHART

3

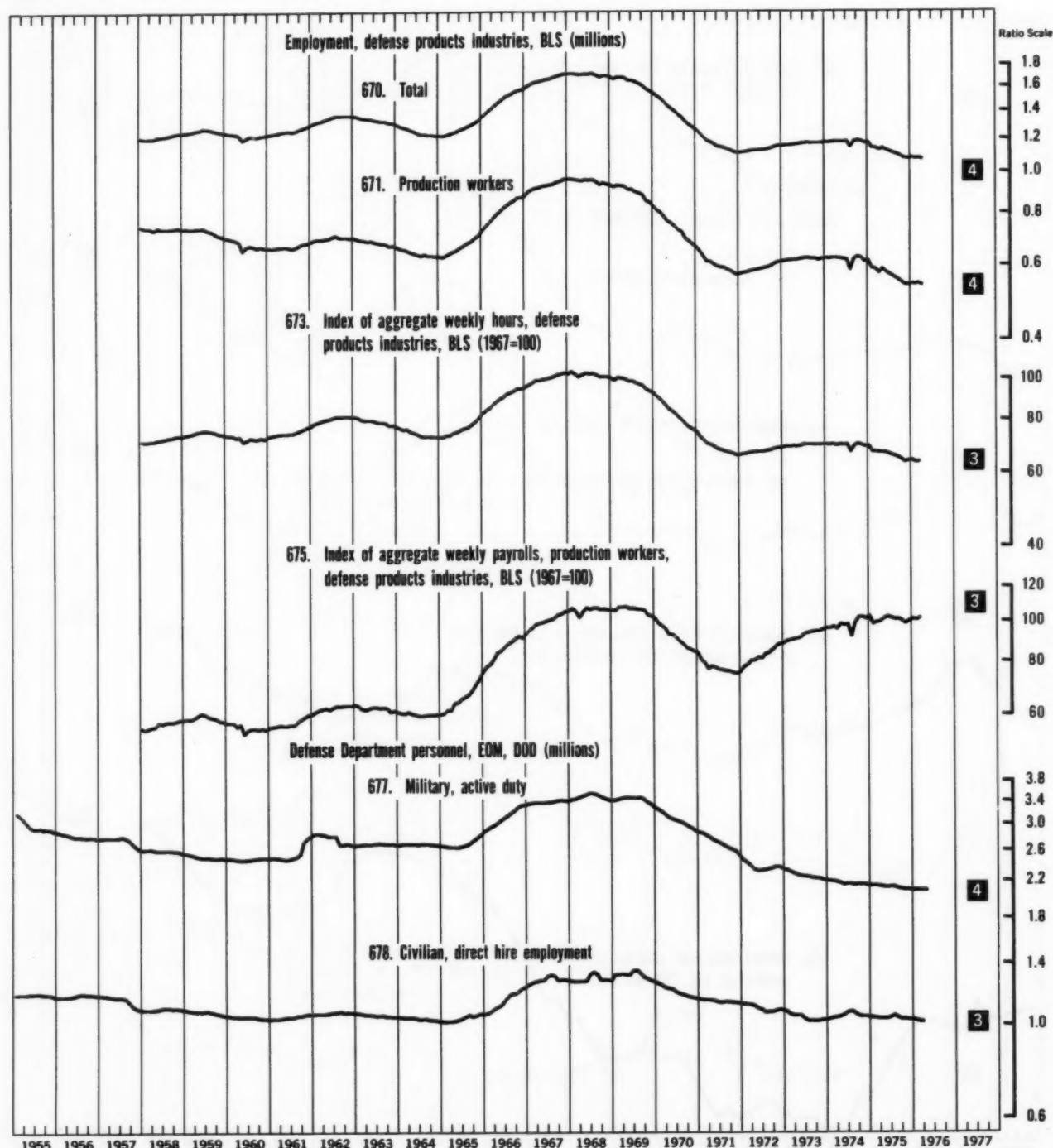
Intermediate and Final Indicators of Defense Activity



* Data prior to 1961 include orders from non-Government customers.
Current data for these series are shown on page 22.

CHART
3

Intermediate and Final Indicators of Defense Activity--Continued

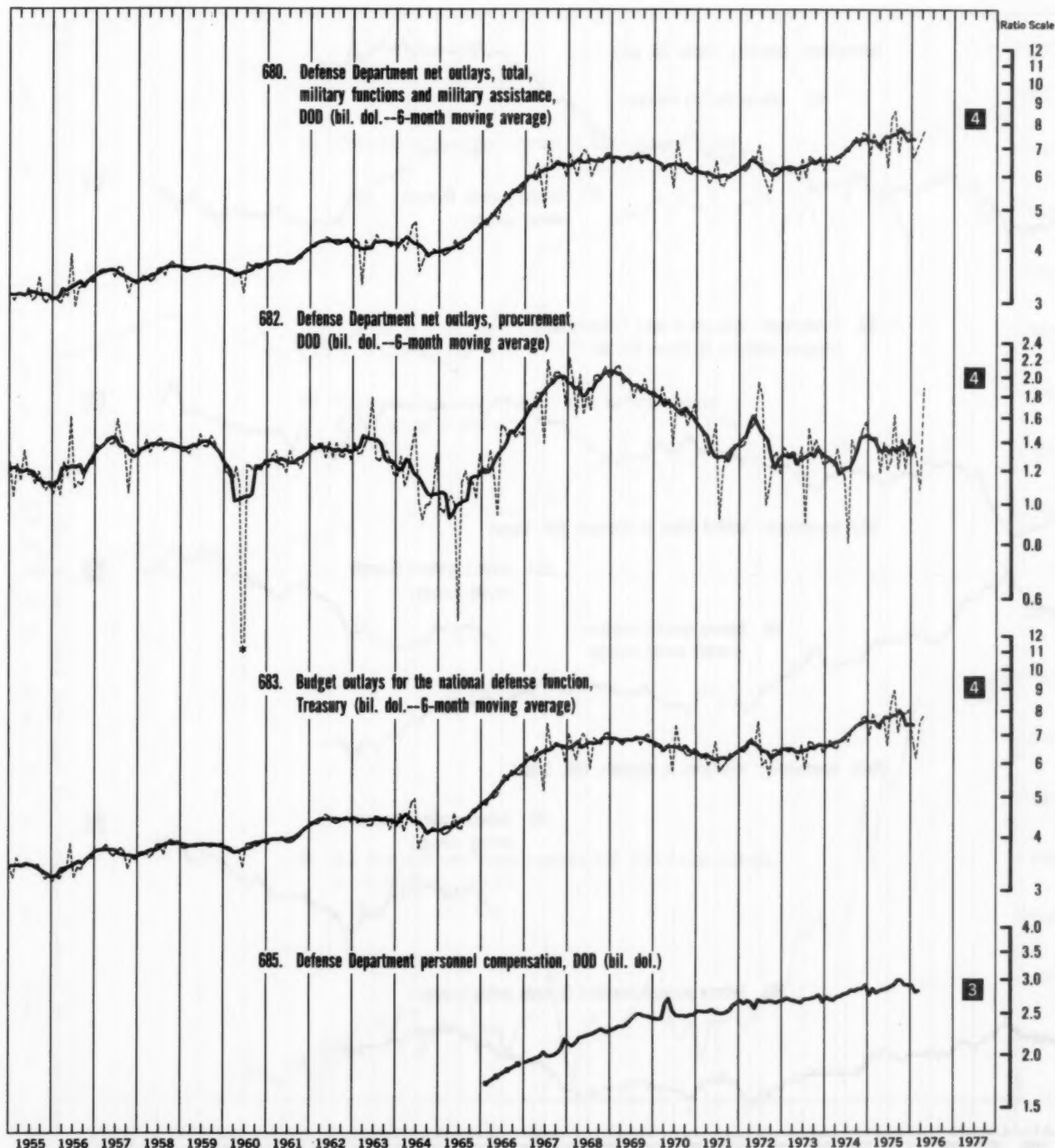


Current data for these series are shown on pages 22, 23, and 24.

CHART

3

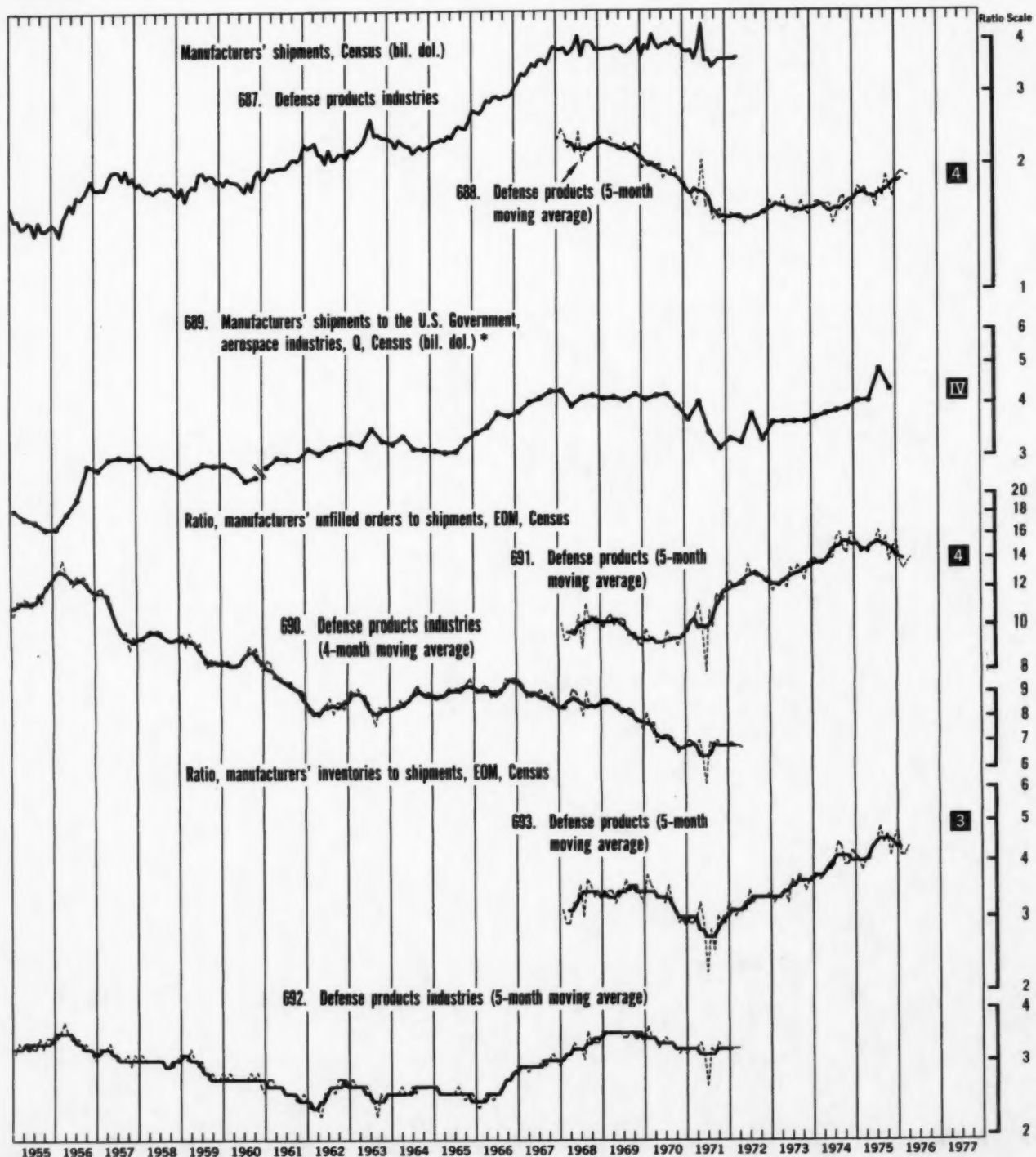
Intermediate and Final Indicators of Defense Activity--Continued



*Net expenditures for procurement, June 1960--\$245 million.
Current data for these series are shown on pages 24 and 25.

CHART
3

Intermediate and Final Indicators of Defense Activity--Continued

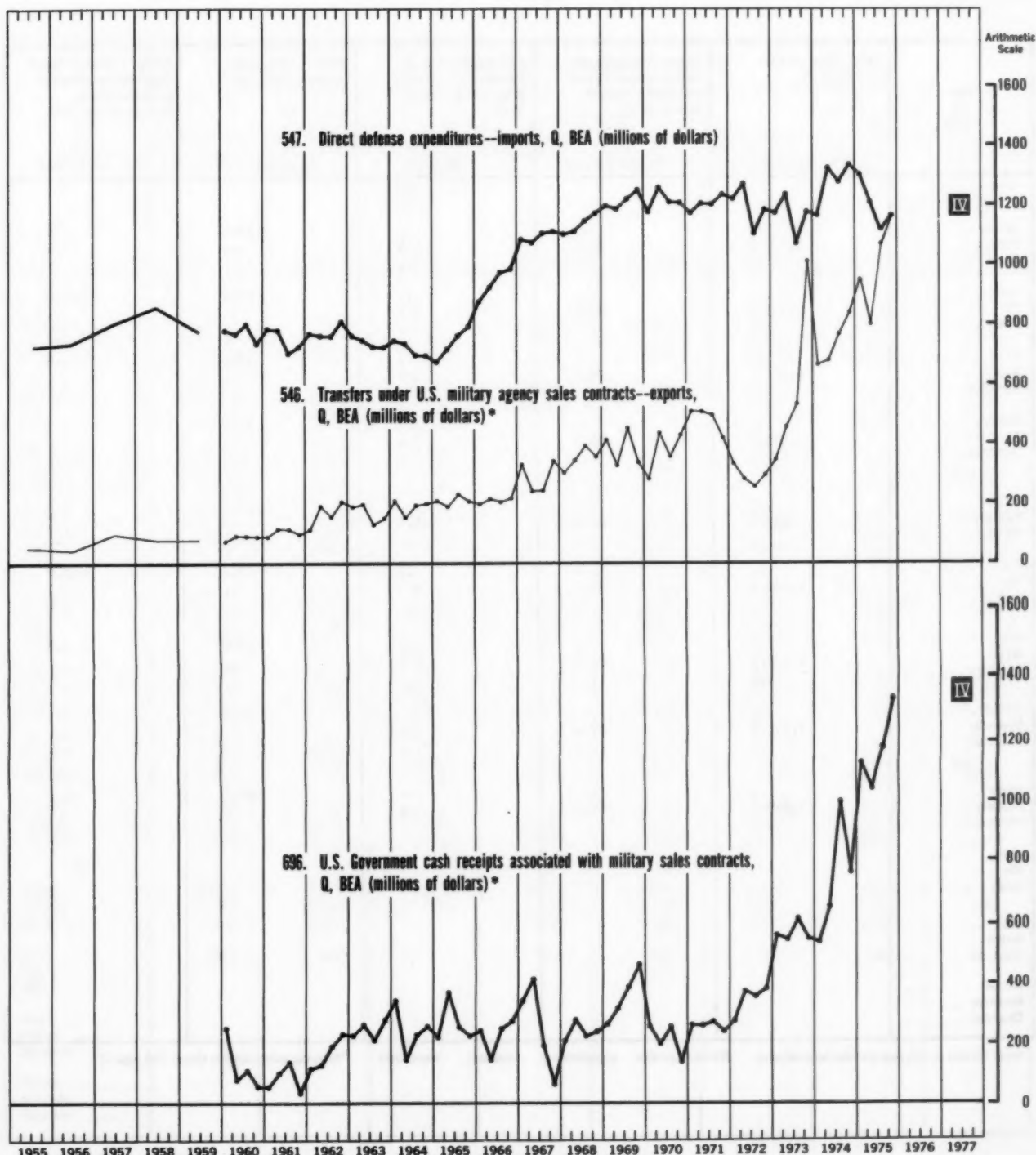


*Data prior to 1961 include shipments to non-Government customers.
Current data for these series are shown on page 26.

CHART

4

Defense-Related Balance of Payments Components



*See footnotes 1 and 2 on page 27.
Current data for these series are shown on page 27.

defense indicators

TABLE

1

Gross National Product and National Defense Purchases

Year and month	200(a). Gross national product, BEA*	264(a). Federal Government purchases of goods and services, national defense, BEA*	613. National defense purchases as a percent of gross national product, BEA*	200(b). Change in gross national product, BEA*	264(b). Change in Federal Government purchases of goods and services, national defense, BEA*
	(Ann. rate, bil. dol.)	(Ann. rate, bil. dol.)	(Percent)	(Ann. rate, bil. dol.)	(Ann. rate, bil. dol.)
1974					
January .....	...	...	...	18.2	0.6
February	1,370.9	74.8	5.5	...	...
March .....	...	...	...	...	...
April .....	...	...	...	20.1	1.0
May	1,391.0	75.8	5.4	...	...
June .....	...	...	...	...	...
July .....	...	...	...	33.4	2.6
August	1,424.4	78.4	5.5	...	...
September .....	...	...	...	...	...
October .....	...	...	...	16.9	2.1
November	1,441.3	80.5	5.6	...	...
December .....	...	...	...	...	...
1975					
January .....	...	...	...	-7.7	0.9
February	1,433.6	81.4	5.7	...	...
March .....	...	...	...	...	...
April .....	...	...	...	27.0	0.7
May	1,460.6	82.1	5.6	...	...
June .....	...	...	...	...	...
July .....	...	...	...	67.9	2.8
August	1,528.5	84.9	5.6	...	...
September .....	...	...	...	...	...
October .....	...	...	...	44.4	2.5
November	1,572.9	87.4	5.6	...	...
December .....	...	...	...	...	...
1976					
January .....	...	...	...	146.3	-0.4
February	1,619.2	87.0	5.4	...	...
March .....	...	...	...	...	...
April .....	...	...	...	...	...
May .....	...	...	...	...	...
June .....	...	...	...	...	...
July .....	...	...	...	...	...
August .....	...	...	...	...	...
September .....	...	...	...	...	...
October .....	...	...	...	...	...
November .....	...	...	...	...	...
December .....	...	...	...	...	...

Note: All data on this page are seasonally adjusted. NA=not available; p=preliminary; r=revised; e=estimated. *Indicates series shown in charts. (See page 5.)

Advance Indicators of Defense Activity

Year and month	Defense Department gross obligations incurred, DOD							
	617. Total			619. Operations		621. Procurement		
	Not seasonally adjusted	Seasonally adjusted*	Moving average of seasonally adjusted data—6-month*	Not seasonally adjusted	Seasonally adjusted	Not seasonally adjusted	Seasonally adjusted*	Moving average of seasonally adjusted data—6-month*
	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)
1974								
January	8,113	7,527	7,374	4,991	4,714	2,337	2,077	1,689
February	6,826	7,398	7,390	4,187	4,758	1,677	1,708	1,731
March	6,613	7,485	7,368	4,377	4,699	1,381	1,642	1,658
April	7,375	7,762	7,588	4,982	4,804	1,546	2,040	1,702
May	6,104	7,187	7,664	4,434	4,662	894	1,330	1,675
June	10,110	8,166	7,810	6,170	5,466	2,465	1,412	1,672
July	9,285	7,983	7,926	5,901	5,110	1,332	1,919	1,706
August	8,874	8,279	7,912	5,224	5,203	1,416	1,692	1,607
September	7,790	8,179	8,083	4,771	5,040	1,919	1,842	1,777
October	7,965	7,681	8,075	5,394	4,999	1,709	1,446	1,780
November	7,600	8,211	7,968	4,471	4,786	2,281	2,349	1,697
December	7,260	8,116	7,832	4,826	5,334	1,646	1,431	1,667
1975								
January	8,252	7,341	7,916	5,471	5,148	1,895	1,424	1,751
February	6,904	7,467	7,958	4,604	5,220	1,569	1,509	1,748
March	7,526	8,677	7,956	4,787	5,251	1,994	2,349	1,665
April	7,403	7,933	8,033	5,424	5,209	1,147	1,425	1,700
May	6,796	8,199	8,246	4,761	5,121	1,147	1,850	1,808
June	11,027	8,583	8,569	6,275	5,560	2,693	1,642	2,027
July	9,903	8,614	8,440	6,641	5,624	1,510	2,074	1,891
August	9,812	9,406	8,516	5,337	5,327	2,508	2,821	1,911
September	7,705	7,907	8,494	5,203	5,442	1,506	1,535	1,808
October	9,045	8,387	8,385	6,130	5,660	1,733	1,543	1,784
November	6,976	8,069	8,304	4,829	5,334	1,320	1,234	1,658
December	7,156	7,925	8,064	4,895	5,373	1,428	1,494	1,456
1976								
January	8,652	8,132	8,220	6,010	5,729	1,697	1,321	1,592
February	7,206	7,962	(NA)	4,745	5,203	1,664	1,611	(NA)
March	8,241	8,842		4,995	5,354	2,093	2,349	
April	(NA)	(NA)		(NA)	(NA)	(NA)	(NA)	
May								
June								
July								
August								
September								
October								
November								
December								

NA=not available; p=preliminary; r=revised; e=estimated.

*Indicates series shown in charts. (See page 6.)

defense indicators

TABLE

2

Advance Indicators of Defense Activity--Continued

Year and month	623. Gross obligations incurred outside the Federal Government for national defense, Treasury		Defense Department military prime contract awards for work performed in the United States, DOD						
	Seasonally adjusted*	Moving average of seasonally adjusted data--6-month*	625. Total			626. Aircraft		627. Missile and space systems	
			Not seasonally adjusted	Seasonally adjusted*	Moving average of seasonally adjusted data--6-month*	Not seasonally adjusted	Seasonally adjusted	Not seasonally adjusted	Seasonally adjusted
	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)
1974									
January	8,264	7,784	3,084	3,378	3,123	1,093	...	206	...
February	7,874	7,673	2,613	3,141	3,317	598	2,424	305	844
March	7,819	7,712	2,602	2,677	3,212	517	...	255	...
April	8,270	p8,068	3,127	4,343	3,310	459	...	303	...
May	7,647	p8,112	2,250	2,881	3,329	308	1,104	297	1,271
June	p8,534	p8,333	6,086	3,440	3,498	502	...	323	...
July	8,526	p8,584	3,924	3,494	3,636	1,089	...	618	...
August	9,202	p8,623	4,091	4,153	3,605	591	2,446	430	1,448
September	9,326	p8,842	3,586	3,502	3,754	866	...	848	...
October	8,503	8,776	4,165	4,161	3,603	1,156	...	410	...
November	8,963	8,700	3,207	3,777	3,636	856	2,900	434	1,107
December	8,139	8,545	2,616	2,532	3,609	569	...	361	...
1975									
January	8,069	8,422	3,567	3,693	3,494	1,062	...	346	...
February	8,271	7,894	3,321	3,987	3,488	509	2,147	276	980
March	8,590	8,472	2,625	2,817	3,513	421	...	244	...
April	5,335	p8,863	2,914	4,122	3,720	316	...	377	...
May	12,426	p9,084	2,713	3,926	3,744	386	1,240	242	1,654
June	p10,487	p9,259	6,626	3,773	3,925	732	...	537	...
July	9,397	p9,176	4,376	3,842	3,969	810	...	661	...
August	9,321	p9,592	5,295	5,072	3,776	1,196	2,415	1,070	1,586
September	8,092	(NA)	3,179	3,080	3,600	469	...	379	...
October	7,830		3,174	2,961	3,493	817	...	463	...
November	(NA)		2,608	2,872	3,420	373	1,807	498	1,327
December			2,870	3,130	3,074	483	...	426	...
1976									
January			3,288	3,407	3,612	546	...	341	...
February			2,529	2,993	(NA)	335	2,244	278	1,027
March			5,356	6,309		1,332		243	
April			(NA)	(NA)		(NA)		(NA)	
May									
June									
July									
August									
September									
October									
November									
December									

NA=not available; p=preliminary; r=revised; e=estimated. *Indicates series shown in charts. (See pages 6 and 7.)

Advance Indicators of Defense Activity--Continued

Year and month	Defense Department military prime contract awards for work performed in the United States, DOD--Continued						
	628. Ships, not seasonally adjusted	629. Weapons and ammunition		630. Electronic and communications equipment		631. Combat vehicles	
		Not seasonally adjusted	Seasonally adjusted	Not seasonally adjusted	Seasonally adjusted	Not seasonally adjusted	Seasonally adjusted
	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)
1974							
January	52	135	...	311	...	102	...
February	212	244	541	415	1,013	5	253
March	103	142	...	206	...	40	...
April	190	170	...	403	...	129	...
May	155	123	680	270	1,110	98	502
June	1,175	554	...	732	...	404	...
July	230	37	...	321	...	59	...
August	625	72	453	402	1,316	104	249
September	134	111	...	352	...	151	...
October	210	122	...	598	...	25	...
November	328	114	334	349	1,239	22	126
December	109	165	...	254	...	81	...
1975							
January	325	125	...	414	...	21	...
February	251	160	515	331	1,379	66	288
March	11	217	...	535	...	52	...
April	621	147	...	313	...	23	...
May	94	128	683	587	1,255	86	191
June	858	672	...	696	...	161	...
July	250	52	...	394	...	126	...
August	814	126	630	470	1,559	70	259
September	439	95	...	430	...	90	...
October	80	128	...	439	...	67	...
November	114	66	303	445	1,277	14	172
December	211	146	...	332	...	62	...
1976							
January	310	76	...	263	...	48	...
February	124	101	341	305	1,079	26	238
March	1,213	148	...	442	...	61	...
April	(NA)	(NA)	...	(NA)	...	(NA)	...
May							
June							
July							
August							
September							
October							
November							
December							

NA=not available; p=preliminary; r=revised; e=estimated.

defense indicators

TABLE

2

Advance Indicators of Defense Activity--Continued

Year and month	Defense Department military prime contract awards for work performed in the United States, DOD--Continued							
	632. Other hard goods		633. Soft goods		634. Construction		635. Services	
	Not seasonally adjusted	Seasonally adjusted	Not seasonally adjusted	Seasonally adjusted	Not seasonally adjusted	Seasonally adjusted	Not seasonally adjusted	Seasonally adjusted
	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)
1974								
January	128	...	297	...	90	...	204	...
February	111	467	145	1,374	52	258	138	900
March	179	...	487	...	92	...	181	...
April	294	...	344	...	248	...	166	...
May	139	564	214	1,081	58	504	168	846
June	352	...	256	...	604	...	524	...
July	163	...	338	...	131	...	451	...
August	158	677	819	890	148	601	303	762
September	129	...	219	...	112	...	233	...
October	108	...	267	...	138	...	446	...
November	127	391	226	692	126	578	185	742
December	135	...	222	...	104	...	181	...
1975								
January	154	...	217	...	168	...	307	...
February	143	497	704	1,489	134	481	341	1,396
March	152	...	191	...	127	...	201	...
April	147	...	164	...	156	...	190	...
May	165	487	121	658	291	838	211	925
June	399	...	213	...	1,073	...	574	...
July	104	...	811	...	82	...	634	...
August	173	616	307	937	61	486	570	1,136
September	150	...	256	...	178	...	204	...
October	201	...	173	...	149	...	216	...
November	156	631	214	687	56	605	210	523
December	179	...	244	...	176	...	121	...
1976								
January	190	...	817	...	85	...	244	...
February	201	1,420	330	1,611	107	448	256	1,111
March	898	...	187	...	151	...	230	...
April	(NA)	...	(NA)	...	(NA)	...	(NA)	...
May								
June								
July								
August								
September								
October								
November								
December								

NA=not available; p=preliminary; r=revised; e=estimated.

Advance Indicators of Defense Activity--Continued

Year and month	Defense Department military prime contract awards for work performed in the United States, DOD--Continued					640. Defense Department military prime contract awards for work outside the United States, DOD	
	636. Contracts under \$10,000		637. Educational and nonprofit institutions		638. Civilian Health and Medical Program of the Uniformed Services (CHAMPUS), not seasonally adjusted	Not seasonally adjusted	Seasonally adjusted
	Not seasonally adjusted	Seasonally adjusted	Not seasonally adjusted	Seasonally adjusted			
	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)
1974							
January	327	...	76	...	63	160	...
February	333	996	55	233	0	114	594
March	329	...	58	...	13	198	...
April	384	...	37	...	0	80	...
May	382	1,066	38	186	0	94	559
June	570	...	70	...	20	333	...
July	225	...	162	...	100	421	...
August	321	1,116	118	243	0	448	632
September	380	...	51	...	0	120	...
October	399	...	46	...	240	190	...
November	374	1,204	59	187	7	93	559
December	343	...	92	...	0	111	...
1975							
January	372	...	51	...	5	114	...
February	345	1,144	61	205	0	93	388
March	419	...	53	...	2	96	...
April	418	...	42	...	0	73	...
May	367	1,141	35	201	0	86	813
June	635	...	76	...	0	558	...
July	263	...	184	...	5	244	...
August	345	1,218	92	253	1	149	317
September	409	...	80	...	0	124	...
October	374	...	67	...	0	252	...
November	412	1,273	50	192	0	164	941
December	408	...	82	...	0	255	...
1976							
January	327	...	39	...	2	286	...
February	416	1,156	48	163	2	95	681
March	405	...	44	...	2	139	...
April	(NA)	...	(NA)	...	(NA)	(NA)	...
May							
June							
July							
August							
September							
October							
November							
December							

NA=not available; p=preliminary; r=revised; e=estimated.

defense indicators

TABLE
2

Advance Indicators of Defense Activity--Continued

Year and month	Defense Department gross unpaid obligations outstanding, DOD						648. Manufacturers' new orders, defense products, Census		650. Manufacturers' new orders from the U.S. Government, aerospace industries, Census, seasonally adjusted*
	643. Total		644. Operations		645. Procurement				
	Not seasonally adjusted	Seasonally adjusted*	Not seasonally adjusted	Seasonally adjusted	Not seasonally adjusted	Seasonally adjusted	Seasonally adjusted*	Moving average of seasonally adjusted data—6-month*	
	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	
1974									
January	38,249	37,280	7,425	6,959	23,791	23,143	2,183	1,852	...
February	37,963	37,001	7,055	6,964	24,032	23,175	2,064	1,802	4,705
March	37,249	37,436	6,779	7,189	23,847	23,634	1,462	1,794	...
April	37,264	38,141	7,044	7,550	23,778	23,970	1,527	1,844	...
May	35,601	38,076	6,476	7,301	23,123	23,987	2,079	1,710	3,073
June	37,545	38,947	7,373	8,417	23,994	23,756	1,752	1,904	...
July	e39,626	e40,435	e8,149	e8,392	e24,316	e24,914	1,377	1,940	...
August	40,594	40,152	8,426	8,010	23,791	24,351	3,229	1,919	5,709
September	41,055	40,488	8,311	7,991	24,283	24,703	1,678	1,965	...
October	41,201	39,731	8,607	7,610	24,361	24,337	1,401	1,951	...
November	40,949	40,068	7,906	7,334	25,147	25,022	2,351	1,994	5,627
December	40,407	40,047	7,654	7,556	25,199	25,024	1,668	1,813	...
1975									
January	40,819	39,823	7,997	7,495	25,484	24,838	1,635	1,817	...
February	40,008	39,147	7,520	7,460	25,452	24,568	2,147	1,857	4,252
March	39,473	39,791	7,169	7,651	25,688	25,259	1,702	1,742	...
April	38,589	39,457	7,276	7,807	24,932	24,957	1,639	1,782	...
May	37,120	39,658	6,746	7,666	24,321	25,099	1,659	1,812	3,875
June	39,557	41,334	7,303	8,346	25,311	25,438	1,909	1,796	...
July	e41,470	e42,144	e8,733	e8,939	e25,167	e25,370	1,818	1,844	...
August	43,248	42,651	8,677	8,280	26,070	26,684	2,048	1,806	4,721
September	43,084	42,281	8,677	8,287	26,002	26,479	1,991	1,821	...
October	43,754	42,193	9,259	8,172	26,081	26,238	1,408	1,753	...
November	42,767	41,724	8,804	8,144	25,810	25,707	1,750	r1,681	p5,495
December	41,551	40,897	8,261	8,155	25,507	25,305	1,501	r1,637	...
1976									
January	42,110	40,804	8,947	8,489	25,503	24,905	r1,390	r1,744	...
February	41,512	41,101	8,538	8,624	25,586	24,841	r1,784	p1,877	(NA)
March	41,046	41,926	7,966	8,584	25,783	25,277	r2,633		
April	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	p2,204		
May									
June									
July									
August									
September									
October									
November									
December									

NA=not available; p=preliminary; r=revised; e=estimated. *Indicates series shown in charts. (See pages 7 and 8.)

Advance Indicators of Defense Activity--Continued

Year and month	653. Average weekly overtime hours, production workers, defense products industries, BLS			654. Accession rate, defense products industries, BLS			655. Layoff rate, defense products industries, BLS		
	Not seasonally adjusted	Seasonally adjusted*	Moving average of seasonally adjusted data--4-month*	Not seasonally adjusted	Seasonally adjusted*	Moving average of seasonally adjusted data--4-month*	Not seasonally adjusted	Seasonally adjusted*	Moving average of seasonally adjusted data--4-month*
	(Hours)	(Hours)	(Hours)	(Per 100 employees)	(Per 100 employees)	(Per 100 employees)	(Per 100 employees)	(Per 100 employees)	(Per 100 employees)
1974			(¹)						
January	2.9	3.0	3.1	2.1	2.2	2.2	0.6	0.4	0.5
February	2.7	2.8	3.0	1.8	2.1	2.1	0.6	0.5	0.5
March	2.8	2.9	2.8	1.9	2.1	2.2	0.6	0.4	0.4
April	2.1	2.4	2.8	2.1	2.3	2.2	0.6	0.5	0.5
May	2.8	3.1	2.8	2.2	2.2	2.2	0.5	0.6	0.5
June	3.0	3.0	2.9	2.8	2.1	2.2	0.5	0.6	0.5
July	2.7	3.0	3.0	2.6	2.3	2.2	0.4	0.5	0.6
August	2.8	2.8	2.8	2.6	2.2	2.2	0.5	0.6	0.6
September	2.9	2.6	2.8	2.6	2.2	2.1	0.5	0.6	0.6
October	2.8	2.7	2.7	2.1	1.9	2.0	0.7	0.7	0.6
November	2.9	2.6	2.6	1.3	1.6	1.8	0.8	0.7	0.7
December	3.0	2.6	2.6	0.9	1.7	1.7	0.8	0.8	0.8
1975									
January	2.4	2.5	2.6	1.4	1.6	1.6	1.2	1.1	1.0
February	2.4	2.5	2.5	1.3	1.6	1.6	1.3	1.2	1.2
March	2.3	2.5	2.5	1.3	1.6	1.7	2.1	1.9	1.4
April	2.1	2.4	2.4	1.9	2.1	1.6	1.4	1.3	1.4
May	2.0	2.3	2.4	1.3	1.3	1.5	1.3	1.3	1.5
June	2.5	2.4	2.4	1.7	1.0	1.4	1.3	1.4	1.2
July	2.2	2.5	2.4	1.6	1.3	1.2	0.8	1.0	1.2
August	2.6	2.6	2.5	1.6	1.2	1.2	1.2	1.3	1.2
September	2.8	2.5	2.6	1.7	1.3	1.2	1.0	1.2	1.2
October	2.7	2.6	2.6	1.4	1.2	1.2	1.0	1.1	1.1
November	2.7	2.5	2.5	1.0	1.3	1.4	0.8	0.7	0.9
December	2.9	2.5	2.6	0.8	1.6	1.4	0.6	0.6	0.8
1976									
January	2.5	2.6	2.6	1.3	1.4	1.5	1.1	1.0	0.8
February	2.5	2.6	p2.6	1.3	1.6	(NA)	0.8	0.7	(NA)
March	p2.5	p2.6	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
April	(NA)	(NA)							
May									
June									
July									
August									
September									
October									
November									
December									

NA=not available; p=preliminary; r=revised; e=estimated. *Indicates series shown in charts. (See page 8.)

¹See "New Features and Changes for This Issue," page 3.

defense indicators

TABLE

3

Intermediate and Final Indicators of Defense Activity

Year and month	657. Output of defense and space equipment, FRB, seasonally adjusted*	659. Manufacturers' inventories, defense products, Census, seasonally adjusted*	661. Manufacturers' unfilled orders, defense products, Census, seasonally adjusted*	664. Manufacturers' unfilled orders from the U.S. Government, aerospace industries, Census, seasonally adjusted*	666. Defense Department progress payments outstanding, DOD, not seasonally adjusted*	670. Employment in defense products industries, total, BLS	
	(Index: 1967=100)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	Not seasonally adjusted	Seasonally adjusted*
						(Thous.)	(Thous.)
1974							
January	81.4	5,679	21,372	...	...	1,181	1,177
February	80.9	5,837	21,827	...	...	1,176	1,176
March	81.0	5,966	21,678	17,378	7,781	1,175	1,180
April	80.6	5,978	21,622	...	...	1,174	1,181
May	82.2	6,119	22,107	...	...	1,170	1,179
June	81.7	6,201	22,261	16,847	8,104	1,175	1,179
July	82.6	6,303	22,208	...	...	1,176	1,184
August	82.7	6,431	23,941	...	...	1,140	1,147
September	83.1	6,377	23,979	19,002	8,531	1,185	1,181
October	84.1	6,463	23,715	...	...	1,196	1,188
November	83.7	6,477	24,530	...	...	1,196	1,183
December	83.4	6,543	24,612	20,662	9,166	1,184	1,171
1975							
January	83.8	6,503	24,603	...	...	1,178	1,175
February	82.4	6,714	24,998	...	...	1,141	1,141
March	82.1	6,867	24,986	20,811	9,609	1,137	1,142
April	82.4	6,978	24,883	...	...	1,121	1,128
May	82.7	7,110	24,875	...	...	1,131	1,140
June	82.9	7,637	25,118	21,147	10,464	1,123	1,127
July	82.6	7,455	25,368	...	...	1,110	1,117
August	81.4	7,575	25,685	...	...	1,100	1,108
September	81.6	7,687	26,011	20,786	11,008	1,104	1,100
October	81.1	7,730	25,552	...	...	1,097	1,090
November	79.4	7,824	25,566	...	...	1,089	1,077
December	79.0	7,806	25,403	p21,890	11,257	1,088	1,075
1976							
January	79.3	7,642	r24,942	...	...	1,084	1,081
February	79.1	7,845	r24,827	...	...	1,075	1,076
March	r78.7	8,082	r25,574	(NA)	(NA)	r1,072	r1,078
April	p78.8	(NA)	p25,916			p1,067	p1,074
May							
June							
July							
August							
September							
October							
November							
December							

NA=not available; p=preliminary; r=revised; e=estimated. *Indicates series shown in charts. (See pages 9 and 10.)

Intermediate and Final Indicators of Defense Activity--Continued

Year and month	671. Employment in defense products industries, production workers, BLS		673. Index of aggregate weekly hours, defense products industries, BLS		675. Index of aggregate weekly payrolls, production workers, defense products industries, BLS	
	Not seasonally adjusted	Seasonally adjusted*	Not seasonally adjusted	Seasonally adjusted*	Not seasonally adjusted	Seasonally adjusted*
	(Thous.)	(Thous.)	(1967=100)	(1967=100)	(1967=100)	(1967=100)
1974						
January	627	623	69.8	69.8	96.7	96.5
February	623	622	69.6	69.6	96.5	96.3
March	621	624	69.7	69.9	97.0	97.2
April	620	624	68.7	69.4	94.1	95.9
May	615	622	69.4	69.8	97.6	98.7
June	616	620	69.3	69.5	96.9	98.0
July	612	618	68.7	69.8	94.9	98.5
August	576	584	66.3	67.0	89.6	91.9
September	621	619	69.7	69.3	99.8	99.0
October	632	627	70.4	70.0	103.2	102.0
November	634	624	70.7	69.5	105.3	102.2
December	623	611	70.5	69.1	106.3	101.2
1975						
January	618	615	69.2	69.2	102.8	102.6
February	589	589	67.0	67.0	98.6	98.4
March	585	588	66.8	67.0	99.1	99.4
April	570	574	66.1	66.8	97.6	99.5
May	581	588	66.5	66.8	100.2	101.3
June	573	577	66.4	66.6	101.2	102.3
July	564	570	65.0	66.1	97.9	101.7
August	555	563	64.9	65.6	98.3	101.0
September	558	556	65.5	65.1	102.0	101.2
October	554	549	64.9	64.5	101.5	100.4
November	549	540	64.6	63.5	101.8	98.7
December	549	538	65.0	63.8	104.9	99.8
1976						
January	545	542	64.1	64.1	101.3	101.1
February	r540	r540	r63.5	r63.5	r100.7	r100.4
March	r541	543	p63.4	p63.7	p101.6	p101.9
April	p536	p539	(NA)	(NA)	(NA)	(NA)
May						
June						
July						
August						
September						
October						
November						
December						

NA=not available; p=preliminary; r=revised; e=estimated. *Indicates series shown in charts. (See page 10.)

defense indicators

TABLE

3

Intermediate and Final Indicators of Defense Activity--Continued

Year and month	Defense Department personnel, DOD		Defense Department net outlays, DOD				
	677. Military, active duty, not seasonally adjusted*	678. Civilian, direct hire employment, not seasonally adjusted*	680. Total, military functions and military assistance			681. Operations	
			Not seasonally adjusted	Seasonally adjusted*	Moving average of seasonally adjusted data--6-month*	Not seasonally adjusted	Seasonally adjusted
	(Thous.)	(Thous.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)
1974							
January	2,199	1,034	6,728	6,538	6,524	4,376	4,333
February	2,195	1,039	6,384	6,717	6,527	4,137	4,313
March	2,187	1,042	6,702	6,536	6,537	4,398	4,364
April	2,174	1,046	6,685	6,458	6,648	4,367	4,221
May	2,156	1,053	7,204	6,745	6,712	4,718	4,536
June	2,162	1,070	7,872	6,894	6,801	4,835	4,296
July	2,162	1,074	5,979	6,921	6,956	4,628	4,917
August	2,153	1,064	6,897	7,254	7,068	4,804	4,957
September	2,157	1,049	6,948	7,463	7,218	4,575	4,828
October	2,156	1,046	7,271	7,130	7,328	4,817	4,853
November	2,154	1,046	7,473	7,648	7,302	4,912	5,042
December	2,140	1,043	7,451	7,549	7,358	4,742	4,843
1975							
January	2,145	1,038	7,051	6,766	7,312	4,775	4,605
February	2,146	1,036	7,258	7,590	7,284	4,727	4,907
March	2,137	1,034	7,244	7,190	7,258	4,736	4,778
April	2,127	1,034	7,190	6,958	7,056	4,960	4,744
May	2,124	1,035	7,780	7,494	7,308	4,909	4,963
June	2,128	1,042	7,476	6,336	7,475	4,954	4,395
July	2,129	1,052	7,124	8,278	7,423	4,918	5,154
August	2,111	1,038	7,961	8,594	7,552	5,081	5,242
September	2,105	1,030	6,631	6,880	7,566	4,810	5,082
October	2,097	1,031	7,913	7,732	7,788	5,260	5,213
November	2,099	1,029	7,203	7,574	7,515	4,997	5,131
December	2,084	1,028	7,695	7,672	r7,251	5,078	5,068
1976							
January	2,092	1,023	6,649	6,636	r7,326	4,887	4,892
February	2,093	1,019	r6,962	r7,011	p7,321	4,848	4,825
March	2,090	1,016	r7,642	r7,334		r5,026	r4,966
April	p2,087	(NA)	p7,868	p7,699		p5,297	p5,193
May							
June							
July							
August							
September							
October							
November							
December							

NA=not available; p=preliminary; r=revised; e=estimated. *Indicates series shown in charts. (See pages 10 and 11.)

Intermediate and Final Indicators of Defense Activity--Continued

Year and month	Defense Department net outlays, DOD--Continued			683. Budget outlays for the national defense function, Treasury		685. Defense Department personnel compensation, DOD	
	682. Procurement			Seasonally adjusted*	Moving average of seasonally adjusted data--6-month*	Not seasonally adjusted	Seasonally adjusted*
	Not seasonally adjusted	Seasonally adjusted*	Moving average of seasonally adjusted data--6-month*				
	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)
1974							
January	1,270	1,262	1,300	6,569	6,613	2,879	2,738
February	1,195	1,276	1,289	6,835	6,617	2,651	2,702
March	1,313	1,241	1,268	6,579	6,640	2,700	2,687
April	1,382	1,355	1,254	6,567	6,733	2,750	2,739
May	1,292	1,227	1,179	6,874	6,768	2,817	2,745
June	1,346	1,165	1,204	6,973	6,831	2,710	2,782
July	801	810	1,221	6,783	6,962	2,835	2,793
August	1,348	1,425	1,224	7,212	7,112	2,814	2,837
September	1,251	1,343	1,270	7,362	7,254	2,741	2,823
October	1,455	1,377	1,338	7,467	7,393	2,869	2,864
November	1,372	1,501	1,440	7,727	7,436	2,827	2,864
December	1,439	1,569	1,444	7,809	7,550	2,874	2,924
1975							
January	1,427	1,428	1,460	7,039	7,554	2,913	2,762
February	1,351	1,444	1,429	7,896	7,526	2,808	2,862
March	1,500	1,440	1,414	7,385	7,536	2,812	2,799
April	1,200	1,194	1,354	7,297	7,342	2,867	2,836
May	1,467	1,406	1,328	7,788	7,564	2,870	2,850
June	1,409	1,215	1,360	6,649	7,747	2,823	2,869
July	1,225	1,268	1,322	8,367	7,706	2,941	2,895
August	1,559	1,634	1,361	8,996	7,818	2,873	2,923
September	1,191	1,217	1,330	7,140	7,836	2,936	2,999
October	1,500	1,425	1,365	7,971	8,079	3,008	2,999
November	1,081	1,220	1,384	7,896	7,830	2,866	2,927
December	1,319	1,427	1,328	8,103	7,352	2,916	2,925
1976							
January	1,363	1,384	1,305	6,874	7,411	3,018	2,916
February	1,227	1,293	p1,382	6,126	7,380	r2,820	r2,792
March	1,195	1,082		7,497		p2,887	p2,833
April	p1,792	p1,884		7,784		(NA)	(NA)
May							
June							
July							
August							
September							
October							
November							
December							

NA=not available; p=preliminary; r=revised; e=estimated. *Indicates series shown in charts. (See page 11.)

defense indicators

TABLE

3

Intermediate and Final Indicators of Defense Activity--Continued

Year and month	688. Manufacturers' shipments, defense products, Census		689. Manufacturers' shipments to the U.S. Government, aerospace industries, Census, seasonally adjusted*	691. Ratio, manufacturers' unfilled orders to shipments, defense products, Census		693. Ratio, manufacturers' inventories to shipments, defense products, Census	
	Seasonally adjusted*	Moving average of seasonally adjusted data--5-month*		Seasonally adjusted*	Moving average of seasonally adjusted data--5-month*	Seasonally adjusted*	Moving average of seasonally adjusted data--5-month*
	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Ratio)	(Ratio)	(Ratio)	(Ratio)
1974					Revised ¹		(¹)
January	1,552	1,564	...	13.8	13.6	3.7	r3.7
February	1,610	1,573	3,696	13.6	13.6	3.6	3.7
March	1,612	1,591	...	13.4	13.7	3.7	3.7
April	1,586	1,600	...	13.6	13.7	3.8	3.8
May	1,594	1,564	3,780	13.9	14.1	3.8	3.9
June	1,596	1,541	...	13.9	14.6	3.9	4.0
July	1,431	1,551	...	15.5	14.8	4.4	r4.1
August	1,497	1,565	3,834	16.0	14.9	4.3	r4.1
September	1,638	1,553	...	14.6	15.3	3.9	4.1
October	1,663	1,584	...	14.3	15.3	3.9	4.1
November	1,536	1,613	3,888	16.0	15.1	4.2	r4.0
December	1,585	1,636	...	15.5	15.0	4.1	4.0
1975							
January	1,644	1,646	...	15.0	15.1	4.0	4.0
February	1,753	1,688	4,049	14.3	14.7	3.8	4.0
March	1,714	1,704	...	14.6	14.6	4.0	4.0
April	1,742	1,709	...	14.3	14.6	4.0	4.1
May	1,668	1,671	4,056	14.9	15.0	4.3	r4.3
June	1,666	1,675	...	15.1	15.1	4.4	r4.4
July	1,567	1,660	...	16.2	15.3	4.8	r4.5
August	1,732	1,699	4,814	14.8	15.1	4.4	r4.5
September	1,665	1,713	...	15.6	15.0	4.6	4.5
October	1,866	1,732	...	13.7	14.8	4.1	4.5
November	1,736	1,756	p4,313	14.7	14.6	4.5	4.4
December	1,661	1,803	...	15.3	14.1	4.7	r4.3
1976							
January	1,852	r1,807	...	13.5	14.0	4.1	4.3
February	1,899	pl,832	(NA)	r13.1	pl3.9	4.1	(NA)
March	r1,885			r13.6		4.3	
April	pl,862			pl3.9		(NA)	
May							
June							
July							
August							
September							
October							
November							
December							

NA=not available; p=preliminary; r=revised; e=estimated. *Indicates series shown in charts. (See page 12.)

¹ See "New Features and Changes for This Issue," page 3.

Defense-Related Balance of Payments Components

TABLE
4

Year and month	546. Transfers under U.S. military agency sales contracts (exports), BEA ¹		547. Direct defense expenditures (imports), BEA, not seasonally adjusted*	696. U.S. Government cash receipts associated with military sales contracts, BEA ²	
	Not seasonally adjusted	Seasonally adjusted*		Not seasonally adjusted	Seasonally adjusted*
	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)	(Mil. dol.)
1974					
January .....	...	...	...	...	...
February	639	663	1,166	499	544
March .....	...	...	...	...	...
April .....	...	...	...	...	...
May	738	678	1,324	645	653
June .....	...	...	...	...	...
July .....	...	...	...	...	...
August	716	766	1,279	996	998
September .....	...	...	...	...	...
October .....	...	...	...	...	...
November	852	837	1,335	817	762
December .....	...	...	...	...	...
1975					
January .....	...	...	...	...	...
February	909	949	1,303	1,082	1,126
March .....	...	...	...	...	...
April .....	...	...	...	...	...
May	888	800	1,209	1,034	1,042
June .....	...	...	...	...	...
July .....	...	...	...	...	...
August	1,000	1,070	1,120	1,179	1,179
September .....	...	...	...	...	...
October .....	...	...	...	...	...
November	pl,184	pl,162	pl,167	pl,389	pl,337
December .....	...	...	...	...	...
1976					
January .....	...	...	...	...	...
February	(NA)	(NA)	(NA)	(NA)	(NA)
March .....	...	...	...	...	...
April .....	...	...	...	...	...
May .....	...	...	...	...	...
June .....	...	...	...	...	...
July .....	...	...	...	...	...
August .....	...	...	...	...	...
September .....	...	...	...	...	...
October .....	...	...	...	...	...
November .....	...	...	...	...	...
December .....	...	...	...	...	...

NA=not available; p=preliminary; r=revised; e=estimated. *Indicates series shown in charts. (See page 13.)

¹ Includes deliveries for which, under Public Law 93-199, Israel has been released from its contractual liability to pay.² Excludes funds made available to release Israel from its contractual liability to pay for defense articles and services purchased through military sales contracts. Quarterly expenditures for such purpose under Public Laws 93-199 and 93-559 (sec. 45 (a) (7) (B)) amounted to (in millions): 1974, IIQ, \$623; IIIQ, \$223; IVQ, \$91; 1975, IQ, \$187; IIQ, \$124; IIIQ, \$87; IVQ, \$250.

Appendix A. SEASONAL ADJUSTMENT FACTORS

Series title	1975						1976					
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
MONTHLY SERIES												
Defense Department gross obligations incurred:												
617. Total ¹	115.0	104.3	97.4	107.8	86.5	90.3	106.4	90.5	93.2	95.0	77.8	133.3
619. Operations ¹	118.1	100.2	95.6	108.3	90.5	91.1	104.9	91.2	93.3	102.8	89.1	117.6
621. Procurement	72.8	88.9	98.1	112.3	107.0	95.6	128.5	103.3	89.1	68.6	64.9	166.7
623. Gross obligations incurred outside the Federal Government for national defense ¹	117.4	104.5	96.5	105.2	95.6	97.0	108.1	86.7	95.2	94.2	82.5	119.9
625. Defense Department military prime contract awards for work performed in the United States	113.9	104.4	103.2	107.2	90.8	91.7	96.5	84.5	84.9	72.5	71.9	179.3
Defense Department gross unpaid obligations outstanding: ²												
643. Total	98.4	101.4	101.9	103.7	102.5	101.6	103.2	101.0	97.9	95.5	91.9	95.6
644. Operations	97.7	104.8	104.7	113.3	108.1	101.3	105.4	99.0	92.8	93.1	87.0	89.5
645. Procurement	99.2	97.7	98.2	99.4	100.4	100.8	102.4	103.0	102.0	99.8	96.9	100.1
648. Manufacturers' new orders, defense products ³	178.1	85.4	116.2	104.9	91.8	106.5	94.9	98.1	98.4	87.5	71.2	93.1
653. Average weekly overtime hours, production workers, defense products industries ⁴	-.3	.0	.3	.1	.3	.4	-.1	-.1	-.1	-.3	-.3	.0
654. Accession rate, defense products industries ⁴ .....	.3	.4	.4	.2	-.3	-.8	-.1	-.3	-.2	-.2	.0	.6
655. Layoff rate, defense products industries ⁴	-.1	-.1	-.2	.0	.1	.0	.1	.1	.1	.1	.0	-.1
657. Output of defense and space equipment ³	98.6	98.9	100.1	100.1	100.9	101.8	100.0	99.9	100.4	99.4	99.9	100.7
659. Manufacturers' inventories, defense products ³	100.2	99.2	99.7	100.6	100.6	99.4	98.6	99.8	101.3	100.6	100.0	99.9
661. Manufacturers' unfilled orders, defense products ³	101.0	99.7	100.5	101.0	99.9	99.8	101.0	101.2	101.0	99.8	97.3	96.3
Employment in defense products industries:												
670. Total	99.3	99.3	100.3	100.6	101.1	101.2	100.3	99.9	99.5	99.4	99.2	99.6
671. Production workers	99.0	98.6	100.3	100.8	101.7	102.0	100.6	100.0	99.5	99.3	98.8	99.3
673. Index of aggregate weekly hours, defense products industries	98.4	98.9	100.6	100.6	101.7	102.0	100.0	100.0	99.6	98.9	99.4	99.7
675. Index of aggregate weekly payrolls, production workers, defense products industries	96.3	97.3	100.8	101.2	103.1	105.1	100.2	100.3	99.7	98.0	99.0	98.9
Defense Department net outlays:												
680. Total, military functions and military assistance ¹	86.1	92.6	96.4	102.3	95.1	100.3	100.2	99.3	104.2	102.2	97.8	120.2
681. Operations ¹	95.4	96.9	94.6	100.9	97.4	100.2	99.9	100.5	101.2	102.0	97.1	110.3
682. Procurement ¹	96.6	95.4	97.9	105.3	88.6	92.4	98.5	94.9	110.4	95.1	99.7	114.0
683. Budget outlays for the national defense function ¹	87.3	91.5	97.0	102.8	95.4	98.5	100.6	99.9	103.4	102.7	97.3	119.7
685. Defense Department personnel compensation ¹	101.6	98.3	97.9	100.3	97.9	99.7	103.5	101.0	101.9	100.4	99.2	99.6
688. Manufacturers' shipments, defense products ³	98.1	99.1	103.4	99.5	102.9	108.3	88.0	96.4	99.5	99.6	98.9	105.6
QUARTERLY SERIES												
	IIIQ			IVQ			IQ			IIQ		
200. Gross national product ³	98.4			104.5			96.1			100.9		
264. Fed. Govt. purchases of goods and services, national defense ³ ..	95.0			100.9			99.2			104.9		
546. Transfers under U.S. military agency sales contracts-exports ³ ..	-50			15			-24			60		
Defense Department military prime contract awards:												
626. Aircraft	102.5			92.6			98.6			102.7		
627. Missile and space systems	133.0			104.5			83.9			73.5		
629. Weapons and ammunition	43.3			112.3			95.3			150.6		
630. Electronic and communications equipment	83.0			95.2			93.6			124.9		
631. Combat vehicles	110.4			83.0			56.8			146.2		
632. Other hard goods	69.3			84.9			90.8			149.2		
633. Soft goods	146.6			91.9			82.8			74.9		
634. Construction	66.0			63.0			76.6			196.8		
635. Services	123.9			104.6			65.7			104.9		
636. Under \$10,000	83.5			93.8			99.3			123.2		
637. Educational and nonprofit institutions	140.5			103.9			80.2			75.3		
640. Outside U.S.	163.3			71.3			76.4			89.6		
Aerospace industries:												
650. Manufacturers' new orders from the U.S. Government ..	121.0			100.8			88.5			87.0		
664. Manufacturers' unfilled orders from the U.S. Government ..	102.1			101.8			100.2			96.7		
689. Manufacturers' shipments to the U.S. Government	99.1			103.8			94.8			100.9		
696. U.S. Govt. cash receipts associated with military sales contracts ⁴ ..	-2			55			-45			-8		

NOTE: The seasonal adjustment factors presented in this table were computed using the techniques described in the Bureau of the Census Technical Paper No. 15, *The X-11 Variant of the Census Method II Seasonal Adjustment Program*.

Monthly data for Defense Department military prime contract awards by commodity category (series 626 to 640) have not been adjusted for seasonal variation. The series on direct defense expenditures-imports (series 547), Defense Department progress payments outstanding (series 666), and Defense Department personnel (series 677 and 678) contain no measurable seasonal variation.

¹ Factors are products of seasonal and trading-day factors.

² Prior to 1972, data for gross unpaid obligations outstanding are not available for a number

of months but these gaps were filled with averages of preceding and following months for purposes of estimating seasonal variation.

³ These series have been adjusted by the source agencies. The factors shown here are implicit seasonal factors for the calendar year 1973 and are derived by dividing the seasonally unadjusted data by the seasonally adjusted data.

⁴ These series have been seasonally adjusted using the additive version of the seasonal adjustment program. Seasonally adjusted data are derived by subtracting the adjustment factor from the unadjusted data. Seasonally adjusted data for other series are derived by dividing the seasonal factors into the unadjusted data.

⁵ This series is the total of component series which have been adjusted separately by the source agency. The factors shown here are implicit seasonal factors for the calendar year 1974 and are derived by subtracting the seasonally adjusted data from the seasonally unadjusted data.

Appendix B. AVERAGE CHANGES AND RELATED MEASURES OF VARIABILITY

Part 1. Monthly Series

Series title	Period covered	\bar{O}	\bar{CI}	\bar{T}	\bar{C}	$\bar{I/C}$	MCD	Average duration of run (ADR)	
								CI	MCD
Defense Department gross obligations incurred:									
617. Total.....	Jan. '57-Jan. '76 ...	18.28	6.98	6.89	0.72	9.53	6	1.53	2.30
619. Operations.....	July '59-Jan. '76 ...	8.98	2.77	2.66	.65	4.09	4	1.69	3.00
621. Procurement.....	Jan. '57-Jan. '76 ...	44.28	22.39	22.27	1.54	14.44	6	1.46	2.08
623. Gross obligations incurred outside the Federal Government for national defense.....	July '63-Sept. '75 ..	14.17	7.92	7.82	.73	10.72	6	1.52	2.61
625. Defense Department military prime contract awards for work performed in the United States, total.....	Jan. '57-Jan. '76 ...	32.78	15.55	15.41	1.35	11.42	6	1.42	2.05
Defense Department gross unpaid obligations outstanding:									
643. Total.....	Jan. '57-Jan. '76 ...	2.13	1.32	.95	.88	1.08	2	2.65	3.98
644. Operations.....	Jan. '67-Jan. '76 ...	5.59	2.68	2.37	1.13	2.10	3	1.96	5.05
645. Procurement.....	Jan. '67-Jan. '76 ...	2.19	1.52	1.07	.94	1.14	2	2.08	4.12
Manufacturers' new orders:									
647. Defense products industries.....	Jan. '57-Mar. '72 ...	(NA)	15.11	14.89	.97	15.32	6	1.58	2.33
648. Defense products.....	Feb. '68-Jan. '76 ...	(NA)	21.50	21.43	1.47	14.59	6	1.56	1.80
*653. Average weekly overtime hours, production workers, defense products industries (hours).....	Jan. '58-Jan. '76 ...	.22	.11	.11	.03	3.14	4	2.50	3.70
*654. Accession rate, defense products industries (per 100 employees).....	Jan. '58-Jan. '76 ...	.38	.16	.15	.05	3.12	4	2.16	4.18
*655. Layoff rate, defense products industries (per 100 employees).....	Jan. '58-Jan. '76 ...	.17	.14	.13	.04	3.14	4	1.93	4.18
657. Output of defense and space equipment.....	Jan. '57-Jan. '76 ...	(NA)	.96	.50	.75	.67	1	3.40	3.40
Manufacturers' inventories:									
658. Defense products industries.....	Jan. '57-Mar. '72 ...	(NA)	1.04	.52	.85	.62	1	2.80	2.80
659. Defense products.....	Jan. '68-Jan. '76 ...	(NA)	1.75	1.13	1.29	.88	1	3.10	3.10
Manufacturers' unfilled orders:									
660. Defense products industries.....	Jan. '57-Mar. '72 ...	(NA)	1.23	.90	.83	1.09	2	2.76	3.42
661. Defense products.....	Jan. '68-Jan. '76 ...	(NA)	1.51	1.18	.93	1.27	2	2.04	4.13
Employment in defense products industries:									
670. Total.....	Jan. '58-Jan. '76 ...	.76	.70	.29	.59	.50	1	4.91	4.91
671. Production workers.....	Jan. '58-Jan. '76 ...	1.08	.93	.51	.70	.73	1	3.72	3.72
673. Index of aggregate weekly hours, defense products industries.....	Jan. '58-Jan. '76 ...	.95	.76	.39	.60	.65	1	4.00	4.00
675. Index of aggregate weekly payrolls, production workers, defense products industries.....	Jan. '58-Jan. '76 ...	1.72	1.14	.75	.78	.96	1	2.92	2.92
Defense Department personnel:									
677. Military, active duty (U).....	Jan. '57-Jan. '76 ...	.62	(NA)	.27	.55	.48	1	3.86	3.86
678. Civilian, direct hire employment (U).....	Jan. '57-Jan. '76 ...	.55	(NA)	.34	.42	.81	1	4.30	4.30
Defense Department net outlays:									
680. Total, military functions and military assistance.....	Jan. '57-Jan. '76 ...	8.89	4.31	4.19	.77	5.42	6	1.70	3.10
681. Operations.....	July '59-Jan. '76 ...	7.07	3.62	3.41	.73	4.69	5	1.58	2.34
682. Procurement.....	Jan. '57-Jan. '76 ...	15.10	11.77	11.65	1.59	7.32	6	1.57	2.90
683. Budget outlays for the national defense function.....	Jan. '57-Jan. '76 ...	8.87	4.27	4.18	.73	5.73	6	1.58	2.97
685. Defense Department personnel compensation.....	Jan. '67-Jan. '76 ...	2.70	1.33	1.13	.49	2.32	4	2.57	4.38
Manufacturers' shipments:									
687. Defense products industries.....	Jan. '57-Mar. '72 ...	(NA)	2.67	2.49	.87	2.85	3	1.64	3.40
688. Defense products.....	Jan. '68-Jan. '76 ...	(NA)	4.40	4.34	.98	4.41	5	1.57	2.71
Ratio, manufacturers' unfilled orders to shipments:									
690. Defense products industries.....	Jan. '57-Mar. '72 ...	(NA)	2.95	2.71	.96	2.82	4	1.90	3.81
691. Defense products.....	Jan. '68-Jan. '76 ...	(NA)	4.93	4.81	1.01	4.77	5	1.69	2.85
Ratio, manufacturers' inventories to shipments:									
692. Defense products industries.....	Jan. '57-Mar. '72 ...	(NA)	2.84	2.90	.72	4.01	5	2.46	5.74
693. Defense products.....	Jan. '68-Jan. '76 ...	(NA)	5.29	5.18	1.13	4.57	5	1.96	3.07

NA = not available.

*Measures for these series are based on actual changes rather than percent changes (see definition below). (U) indicates measures are based on unadjusted data.

BRIEF DEFINITIONS OF MEASURES SHOWN IN PART 1

The measures in this appendix provide a historical perspective for interpreting current changes in each series. They are derived using the Census X-11 seasonal adjustment program. Brief definitions of the measures are given below; more complete definitions appear in *Electronic Computers and Business Indicators* by Julius Shiskin, issued as Occasional Paper 57 by the National Bureau of Economic Research, 1957 (reprinted from *Journal of Business*, October 1957).

" \bar{O} " is the average month-to-month percent change, without regard to sign, in the original unadjusted series. (See final paragraph below for exceptions to these definitions.)

" \bar{CI} " is the same for the seasonally adjusted series.

" \bar{C} " is the same for the short-term trend, which is a smooth, flexible moving average of the seasonally adjusted series.

" \bar{T} " is the same for the irregular component, which is obtained by dividing the seasonally adjusted series by the short-term trend.

" $\bar{I/C}$ " measures the relative smoothness (small values) or irregularity (large values) of the seasonally adjusted series. It is the ratio of the average monthly percent change (without regard to sign) in the irregular component to the average monthly percent change (without regard to sign) in the short-term trend.

"MCD" (months for cyclical dominance) estimates the number of months required for the short-term trend to dominate the irregular component. Average percent changes are computed for spans of from 1 to 12 months for both the irregular component and the short-term trend. MCD is the shortest span of months for which the average percent change (without regard to sign) in the short-term trend is greater than that in the irregular component. All MCD's greater than "5" are shown as "6".

Appendix B. AVERAGE CHANGES AND RELATED MEASURES OF VARIABILITY—Continued

"Average Duration of Run" (ADR) is another measure of smoothness and is equal to the average number of consecutive monthly changes in the same direction in any series of observations. When there is no change between two observations, a change in the same direction as the preceding change is assumed. The ADR is shown for the seasonally adjusted series (CI) and the MCD curve, which is a moving average (with the number of terms equal to MCD) of the seasonally adjusted series. A comparison of these measures with the expected ADR of a random series indicates whether the changes approximate those of a random series. In a random series, the expected ADR is 1.5 and the actual values fall between 1.36 and 1.75 about 95 percent of the time. For a moving average of a random series, the expected ADR is 2.

Measures for series identified with an asterisk (*) are computed by an additive method. This method is used for series with zero or negative data, series which could approach zero, and series expressed in percent. In this method, the measures are defined the same as above except for two differences: (1) the measures are based on actual month-to-month changes (rather than percent changes) and (2) the irregular component is obtained by subtracting the short-term trend from the seasonally adjusted series. The average changes shown above for the components of such a series are in the same unit of measure as the series itself. The unit is indicated in the series title.

Part 2. Quarterly Series

Series title	Period covered	\bar{O}	\bar{CI}	\bar{I}	\bar{C}	\bar{I}/\bar{C}	QCD	Average duration of run (ADR)	
								CI	QCD
200. Gross national product	IQ '57-IVQ '75	(NA)	1.84	0.35	1.76	0.20	1	8.33	8.33
264. Federal Government purchases of goods and services, national defense ..	IQ '57-IVQ '75	(NA)	1.95	.79	1.70	.46	1	3.26	3.26
*546. Transfers under U.S. military agency sales contracts—exports (mil. dol.) ..	IQ '60-IVQ '75	79.21	65.13	48.28	34.19	1.41	2	1.70	2.30
*547. Direct defense expenditures—imports (mil. dol.) (U)	IQ '60-IVQ '75	42.32	(NA)	36.13	24.65	1.47	2	1.66	2.82
*613. National defense purchases as a percent of GNP (percent)	IQ '57-IVQ '75	(NA)	.16	.07	.15	.46	1	5.36	5.36
650. Manufacturers' new orders from the U.S. Government, aerospace industries	IQ '61-IVQ '75	24.44	17.96	14.82	5.85	2.53	3	1.44	1.73
664. Manufacturers' unfilled orders from the U.S. Government, aerospace industries	IQ '61-IVQ '75	4.55	3.91	2.44	2.68	.91	1	2.27	2.27
666. Defense Department progress payments outstanding (U)	IQ '57-IVQ '75	4.80	(NA)	2.06	4.35	.47	1	2.78	2.78
689. Manufacturers' shipments to the U.S. Government, aerospace industries ..	IQ '61-IVQ '75	7.04	4.27	3.43	2.11	1.62	2	1.84	2.76
*696. U.S. Government cash receipts associated with military sales contracts (million dollars)	IQ '60-IVQ '75	107.60	83.62	61.48	45.74	1.34	2	1.57	2.82

NA = not available.

*Measures for these series are based on actual changes rather than percent changes (see definition below). (U) indicates measures are based on unadjusted data.

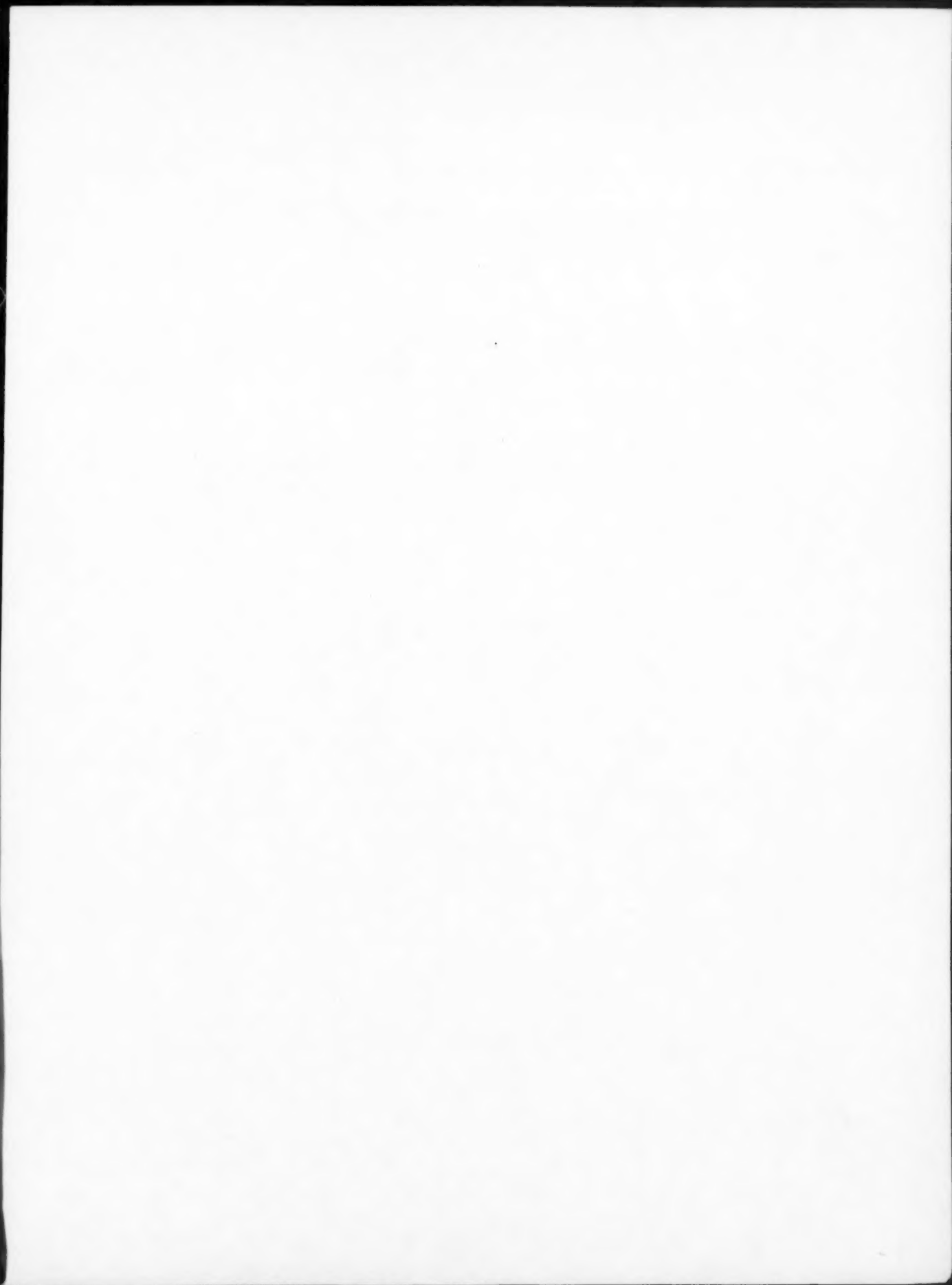
BRIEF DEFINITIONS OF MEASURES SHOWN IN PART 2

These measures are defined the same as those in part 1 except that they are based on quarter-to-quarter percent changes. For example, \bar{CI} is the average quarter-to-quarter percent change (without regard to sign) in the seasonally adjusted series.

In deriving "QCD" (quarters for cyclical dominance), average percent changes are computed for spans of from one to four quarters for the irregular component and the short-term trend. QCD is the shortest span of quarters for

which the average percent change (without regard to sign) in the short-term trend is greater than that in the irregular component. All QCD's greater than "3" are shown as "4". The "Average Duration of Run" (ADR) measures are also expressed in quarters.

As in part 1, measures for series identified with an asterisk (*) are computed by an additive method. This method is the same as that used for the monthly series except for the use of quarterly data rather than monthly.



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ALPHABETICAL INDEX—SERIES FINDING GUIDE

Series title	Series number	Current issue (page numbers)		Historical data (issue date)	Series descriptions (issue date)	Series title	Series number	Current issue (page numbers)		Historical data (issue date)	Series descriptions (issue date)
		Charts	Tables					Charts	Tables		
Accession rate, defense products industries	654	8	21	4/75	4/73	Hours, defense products industries	673	10	23	5/75	4/73
Aerospace industries						Inventories, manufacturers'					
Manufacturers' new orders from U.S. Government	650	See New orders.				Defense products	658	9	22	8/75	2/73
Manufacturers' shipments to U.S. Government	689	See Shipments.				Defense products industries	658	9	...	1/72	2/73
Manufacturers' unfilled orders from U.S. Government	664	See Unfilled orders.				Ratio to shipments, defense products	693	12	26	8/75	2/73
						Ratio to shipments, defense products industries	692	12	...	11/72	2/73
Balance of payments (defense-related)						Layoff rate, defense products industries	655	8	21	4/75	4/73
Cash receipts associated with military sales contracts	696	13	27	3/76	10/73	Military personnel, Defense Department	677	10	24	8/75	8/68
Direct defense expenditures	547	13	27	3/76	10/73	Military prime contract awards—See Contract awards.					
Transfers under military agency sales contracts	546	13	27	3/76	10/73						
Budget outlays for national defense function	683	See Outlays.				New outlays, Defense Department—See Outlays.					
						New orders, manufacturers'					
Cash receipts associated with military sales contracts	696	See Balance of payments.				Defense products	648	7	20	8/75	2/73
Civilian personnel, Defense Department	678	10	24	8/75	8/68	Defense products industries	647	7	...	11/72	2/73
Compensation						From Government, aerospace industries	650	8	20	5/75	2/73
Payrolls, aggregate weekly, defense products industries	675	10	23	5/75	4/73	Obligations incurred, gross					
Personnel compensation, Defense Department	685	11	25	5/75	8/68	Defense Department, operations	619	...	15	4/75	8/68
Contract awards, military prime						Defense Department, procurement	621	6	15	4/75	8/68
Aircraft	626	...	16	7/75	8/68	Defense Department, total	617	6	15	4/75	8/68
Civilian Health and Medical Program	638	...	19	7/75	...	Outside Government for national defense	623	6	16	4/75	10/73
Combat vehicles	631	...	17	7/75	8/68	Obligations outstanding, gross unpaid					
Construction	634	...	18	7/75	8/68	Defense Department, operations	644	...	20	4/75	8/68
Contracts under \$10,000	636	...	19	7/75	8/68	Defense Department, procurement	645	...	20	4/75	8/68
Educational and nonprofit institutions	637	...	19	7/75	8/68	Defense Department, total	643	7	20	4/75	8/68
Electronic and communications equipment	630	...	17	7/75	8/68	Operations, Defense Department					
Missile and space systems	627	...	16	7/75	8/68	Net outlays	681	See Outlays.			
Other hard goods	632	...	18	7/75	8/68	Obligations incurred	619	See Obligations incurred.			
Services	635	...	18	7/75	8/68	Unpaid obligations outstanding	644	See Obligations outstanding.			
Ships	628	...	17	7/75	8/68	Orders—See New orders and Unfilled orders.					
Soft goods	633	...	18	7/75	8/68	Outlays					
Total	625	7	16	7/75	8/68	Budget outlays for national defense function	683	11	25	5/75	10/73
Weapons and ammunition	629	...	17	7/75	8/68	Defense Department, operations	681	...	24	5/75	8/68
Work outside the United States	640	...	19	7/75	8/68	Defense Department, procurement	682	11	25	5/75	8/68
						Defense Department, total	680	11	24	5/75	8/68
Defense and space equipment, output	657	See Output of defense and space equipment.				Output of defense and space equipment	657	9	22	8/75	10/73
Defense Department						Overtime hours, defense products industries	653	8	21	4/75	4/73
Gross obligations incurred—See Obligations incurred.						Payrolls, aggregate weekly, defense products industries	675	See Compensation.			
Gross unpaid obligations outstanding—See Obligations outstanding.						Personnel compensation, Defense Department					
Military prime contract awards—See Contract awards.						Personnel—See Civilian personnel and Military personnel.	685				
Net outlays—See Outlays.						Procurement, Defense Department					
Personnel compensation	685	See Compensation.				Net outlays	682	See Outlays.			
Personnel—See Civilian personnel and Military personnel.						Obligations incurred	621	See Obligations incurred.			
Progress payments outstanding	666	See Progress payments.				Unpaid obligations outstanding	645	See Obligations outstanding.			
Direct defense expenditures	547	See Balance of payments.				Progress payments outstanding, Defense Department	666	9	22	5/75	8/68
						Purchases of goods and services for national defense	264	See Gross national product.			
Employment											
Accession rate, defense products industries	654	See Accession rate.				Shipments, manufacturers'					
Employment, production workers, defense products industries	671	10	23	5/75	4/73	Defense products	688	12	26	8/75	2/73
Employment, total, defense products industries	670	10	22	5/75	4/73	Defense products industries	687	12	...	11/72	2/73
Hours, defense products industries	673	See Hours.				Ratio, inventories to shipments, defense products	693	See Inventories.			
Layoff rate, defense products industries	655	See Layoff rate.				Ratio, inventories to shipments, defense products industries	692	See Unfilled orders.			
Overtime hours, defense products industries	653	See Overtime hours.				Ratio, unfilled orders to shipments, defense products	691	See Unfilled orders.			
Personnel—See Civilian personnel and Military personnel.						Ratio, unfilled orders to shipments, defense products industries	690	See Unfilled orders.			
Expenditures—See Outlays.						To Government, aerospace industries	689	12	26	5/75	2/73
Federal purchases of goods and services for national defense	264	See Gross national product.				Transfers under military agency sales contracts	546	See Balance of payments.			
Gross national product						Unfilled orders, manufacturers'					
Federal purchases of goods and services for national defense	264	5	14	3/76	10/73	Defense products	661	9	22	8/75	2/73
Gross national product	200	5	14	3/76	10/73	Defense products industries	660	9	...	7/71	2/73
National defense purchases as percent of GNP	613	5	14	3/76	10/73	From Government, aerospace industries	664	12	26	8/75	2/73
Gross obligations incurred—See Obligations incurred.						Ratio to shipments, defense products	691	12	26	8/75	2/73
Gross unpaid obligations outstanding—See Obligations outstanding.						Ratio to shipments, defense products industries	690	12	...	11/72	2/73
						Unpaid obligations outstanding—See Obligations outstanding.					



